FIRST STEPS TO CLIMBING

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"BRITISH MOUNTAIN CLIMBS," "SWISS MOUNTAIN CLIMBS," "THE COMPLETE MOUNTAINEER," "MOUNTAIN ADVENTURES AT HOME AND ABROAD," "ON ALPINE HEIGHTS AND BRITISH CRAGS," ETC. ETC.

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CONTENTS

CHAPTER I

PAGE

BEGINNINGS ANCIENT AND MODERN—HOW TO START CLIMBING 13

CHAPTER II

EQUIPMENT: THE CLIMBER HIMSELF—HIS FOOT-WEAR AND HIS CLOTHING . . 22

CHAPTER III

EQUIPMENT: MAINLY THE CLIMBER'S OUTFIT 34

CHAPTER IV

ROCK CLIMBING—MOSTLY PRELIMINARY . 45

CHAPTER V

ROCK CLIMBING—MOSTLY PRACTICAL—THE FIRST STEPS EXPLAINED . . . 52

CHAPTER VI

PAGE

HINTS TO CRAGSMEN—CLIMBING DOWN . 66

CHAPTER VII

ALPINE BEGINNINGS—SNOW- AND ICE-CRAFT 83

CHAPTER VIII

SNOW- AND ICE-CRAFT—*continued* . . 94

CHAPTER IX

WHERE TO BEGIN CLIMBING—THE LEADING CENTRES AND HOW TO REACH THEM . 107

INDEX 128

LIST OF ILLUSTRATIONS

FACING PAGE

THE AIGUILLE BLATIÈRE, FROM THE PETIT CHARMOZ 16

UP THE GREAT CIOCH SLABS IN SKYE . 19

ACROSS THE TRAVERSE ON THE MILESTONE BUTTRESS, TRYFAEN 21

CUTTING STEPS, FÜNFFINGERSPITZE . . 25

A STUDY IN FOOT-WEAR 27

A SAFE, STRAIGHT PULL ON A STEEP BUTTRESS 35

A SAFEGUARD IN CLIMBING A DIFFICULT CRACK 41

'TWIXT EARTH AND SKY, GREAT GABLE . 47

ON A DOE CRAG BUTTRESS 54

A STOMACH TRAVERSE, DOLOMITES . . 57

THE LEADER SAFEGUARDS HIMSELF ON A STEEP PLACE 59

THE LEADER ON THE HAND TRAVERSE, PILLAR ROCK 61

GIVING THE LEADER A SHOULDER . . 73

THE LAST MAN DESCENDING BY A DOUBLED ROPE, SCAWFELL 78

FACING PAGE

ATTITUDES OF BALANCE AND BELAY . . 82
THE LEADER CUTTING STEPS DOWN AN ICE SLOPE 88
CROSSING THE CHERMONTANE PASS INTO ITALY 90
SOUNDING THE STRENGTH OF A SNOW-BRIDGED CREVASSE 92
CUTTING STEPS ON GLACIER ICE . . 94
A SOUND BELAY ON A SLOPE OF STEEP SNOW 96
ON A SNOW-CORNICED SUMMIT . . . 101
"HOLD TIGHT"—MASKED CREVASSE . . 105
TYPICAL BACK AND FOOT WORK. . . 109
'MIDST THE CRAGS OF TRYFAEN . . . 112

FIRST STEPS TO CLIMBING

CHAPTER I

BEGINNINGS ANCIENT AND MODERN—HOW TO START CLIMBING

The history of most of the strenuous sports is prone to dryness. Yet in mountain climbing some of the outstanding first steps in the progress of the sport may prove interesting and even useful. There was nothing "dry" about the first recorded ascent, when Noah and his mixed party reached the summit of Ararat; and between that and the recent attacks on Mount Everest a tremendous store of mountain knowledge has been garnered.

During Biblical times high places were objects of worship, reverence, and even visitation. Yet in more recent ages strange superstitions had grown and mountains had become the repulsive haunts of evil spirits, dragons, and other strange things to be dreaded. Necessary travel between various countries and from one valley to another gradually dissipated these myths, and early in the sixteenth century came one of

the first landmarks in our sport. About this time Gesner and Simler formed a sort of Alpine Club—the first of its kind—amongst the students of Zurich and made excursions into the wilds. Not, however, until the beginning of the eighteenth century did real climbing come into vogue, and the ascent of the snowy Titlis by four peasants from Engelberg in 1739 marked the beginning of the Alpine conquest.

The next noticeable event was the ascent of Mont Blanc in 1786 by Dr. Paccard and Jacques Balmat. Then came a lull in high endeavour, until in 1811 the Jungfrau's summit was reached and the Finsteraarhorn was vanquished during the following year. The easier peaks were surmounted during the succeeding years, but the ascent of the Wetterhorn in 1854 by Mr. Justice Wills's party marked the beginning of the genuine sporting side of mountaineering.

About this time Albert Smith's picture-show of his ascent of Mont Blanc was at its zenith at the Egyptian Hall in London. The popular entertainer treated the excursion in jocular mood and it was a great success. He and his brother also toured the country with "the Alps in a box," and their four-wheel chaise travelled far and wide "with Mont Blanc on a back seat." Certainly Albert Smith's exhibition added largely to the ranks of mountain climbers, and

to-day the picture-show on "Climbing Mount Everest" should have the same effect.

Previous to this time the elements of the use of the ice-axe and rope were understood. On crevassed glacier, for instance, it had been realised that there is safety in numbers if the rope is properly used; but on rocks its advantages were by many regarded as doubtful. The appreciation of the security to be found in the innumerable aids and proper uses of the rope in rock climbing is a comparatively recent development. Once the leader has reached a safe stance, even on a steep and difficult course, the rest of the roped party are practically secure and can follow with comparative freedom from risk. The point is to promote the safety of the leader and help him in every feasible way to overcome the desperate sections. Co-operation under such circumstances has been responsible for much advance in the standard of expeditions that can be undertaken with justification. Safety is the first object, and even to-day the many means by which this can be secured are not fully realised.

In 1857 the Alpine Club was formed, and the example has been followed at home and abroad. In pre-war days the numerous Continental clubs possessed over a hundred thousand members, and nowadays in Great Britain there are

several large and flourishing clubs which are of invaluable service to the man who takes his first steps in climbing.

Tragedy always begets popular interest, and probably Edward Whymper's attack on the Matterhorn in 1865, with its terrible climax, stirred the adventurous spirit of innumerable Britons. The story has still power to make new recruits. About this time many of the great Zermatt peaks, as well as those in the Oberland, were climbed, and ere the dawn of the present century practically all the tapering summits of the aiguilles of Mont Blanc had been trodden by man. The remarkable feats of the late A. F. Mummery on the Aiguilles Charmoz and Grépon and the Dent dû Requin marked an important advance in climbing technique. It is no exaggeration to say that his success was largely helped by those trusty companions who had developed their climbing skill on the homeland crags.

It was in the "eighties and nineties" that British mountains really began to attract attention amongst Alpinists. The publication in 1898 of Owen Glynne Jones's book on "Climbing in the English Lake District" marked the beginning of a new era and further advance in the standard of homeland climbs. The same may be said of the companion volume, "Rock Climb-

The Aig Blaitière from the Petit-Charmoz. A characteristic route is shown. The lower three parts of it is the way up the notoriously dangerous Nantillons Glacier on the ascents of the Aigs Charmoz and Grépon. Avalanches from the upper hanging glacier are prone to occur after sun-rise.

ing in North Wales," which appeared two years later. The photographic illustrations in these volumes were the first to appear depicting climbers actually tackling difficulties on famous courses. They started a new fashion in mountain art. It is amusing to note that several of these illustrations appeared surreptitiously in Alpine centres with French titles, as though they portrayed bits on the Chamonix aiguilles. The Napes Needle was unmistakable even titled as the Aigulle du Nuque, and the "Nose" on the Pillar Rock seemed all the more strenuous under the French name.

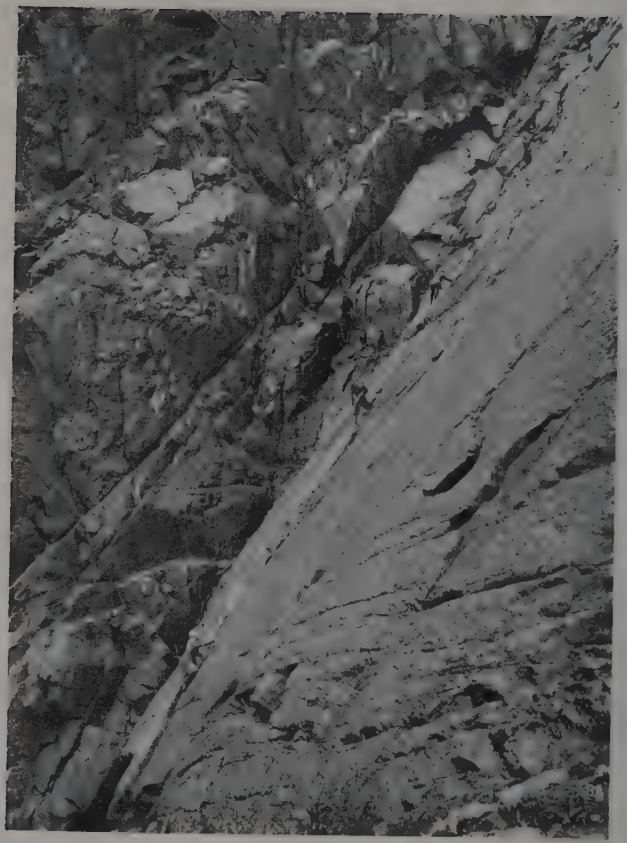
In early days the British crags were looked upon as a training-ground for bigger mountains, but nowadays rock climbing at home has become a recognised sport, and innumerable devotees find it all-sufficing. They have very little desire to climb the Alps, and some who do so are disappointed. It is no exaggeration to say at the present time that a great number of enthusiasts find, for instance, more intrinsic interest in the Lake District climbs, where the rigours and fascination of the sport are concentrated in rock work pure and simple.

There are plenty of men who can tackle the British climbs, where the standard of technical difficulty is far higher than in the Alps, with pleasure and without undue physical strain.

But for many the length of an average first-class Alpine expedition proves trying, and the amount of ordinary walking seems to them scarcely commensurate with the comparatively small amount of interesting difficulty. Still, it must be remembered that the complete mountaineer cannot be evolved without experience in the High Alps or other region above the snowline. The consummation of the climber's desires must be the ascent of the world's bigger mountains, and there only, 'midst scenes of Nature's wildest and most impressive magnificence, will the fullest development of the climber's craft be achieved.

How shall I start climbing? This question is constantly asked, and the answer is not easy. Formerly the writer used to advise the beginner who is alone to go to Wastdale and engage Josef Gaspard for a series of expeditions. In his native Dauphiné the well-known guide has now married a wife and cannot come. In due course a successor may appear.

Undoubtedly the best plan is to begin on the homeland mountains, and the only place where professional help is at present available is at Sligachan in Skye. At that capital centre members of the McKenzie family are still available, and no grave danger is likely to occur under their tutelage. Moreover, the Coolin are prob-



Up the great Cioch Slabs in Skye—a typical illustration of this kind of climbing which is encountered in many districts.

ably the best mountains in Britain on which the beginner may learn not only cragmanship, but also real mountaineering. Many of the Skye peaks have no pedestrian route, and their ascent entails real hand and foot work, though of no serious technical difficulty on the ordinary routes.

But 'tis a far cry to Skye, and the writer usually recommends Wastdale Head in Cumberland as the best starting-ground. At all holiday seasons the world-famous hotel is well filled with enthusiasts, and by making himself mildly agreeable the would-be climber will find his friendliness requited. There are usually plenty of men who will take an interest in a keen beginner, and he will soon be invited to join some party or other. This applies notably to the Lakeland centres, because this is the home country of the Fell and Rock Climbing Club of the English Lake District. It has about 450 members, and there is a *bon camaraderie* amongst them all which is remarkable in a sport that had previously tended towards exclusiveness and aloofness. Membership is easily attained after a novitiate training of a year or so, especially if the candidate has had previous extended experience of mountain walking.

Moreover, the landlord at Wastdale Head has a fine knowledge of climbs and climbers, and if

asked to do so can usually place the inexperienced in good hands. Of course, the beginner must use discretion in accepting invitations, and he should not join in the more difficult expeditions; also wise discretion should be used to avoid the abuse of kindness. An invitation for one day is no justification for "tacking on" for the rest of the holiday.

For a party of beginners the most effective plan, and that which really produces the best climbers, is to tackle the rocks unaided and rely on their own initiative. Perhaps most enjoyment and satisfaction may be thus attained, and in this way many of the leading experts have developed. For Skye, Scotland, Wales, and Lakeland lists of courses arranged in order of difficulty have been published. They begin with easy, and continue to the moderate, difficult, and exceptionally severe sections, and at the outset the tyro will quickly find his powers and develop them by beginning at the first on the list.

O. G. Jones, in his book "Rock Climbing in the Lake District," was the first to use this idea, and any attempted substitutes have been feeble failures.

In "British Mountain Climbs" (Mills & Boon, 10*s.* 6*d.* net) the graduated lists of courses for all the British districts are included. The best homeland experience of an Alpine charac-

Across the traverse on the Mile Stone Buttress, Tryfaen, N. Wales. The lower end of the rope should have been held by the third man on the extreme right.

ter is to be gained in Scotland, notably on the Ben Nevis group; but for rock work, the beginner will find the routes in Scotland less well marked than on English or Welsh crags. The Scottish Mountaineering Club has thoroughly explored the widely scattered ranges, and its splendid *Journal* is invaluable for all who climb north of the Tweed. The beginner in North Wales will find useful aid in the publications of the Climbers' Club, whose activities are nowadays mainly devoted to the Welsh mountains. In Tryfaen they have one of the best beginners' mountains in Britain, whilst in Lliwedd they probably possess the worst.

There are several other clubs whose keen and enthusiastic members pay attention to various districts, not only at home but abroad. Special mention should be made of the Yorkshire Ramblers' Club, the Rucksack Club (centred in Manchester), and the Wayfarers' Club (which consists largely of Liverpool men). Oxford and Cambridge have also flourishing organisations deeply interested in all mountain sport.

CHAPTER II

EQUIPMENT: THE CLIMBER HIMSELF—HIS FOOT-WEAR AND HIS CLOTHING

The equipment of the climber, especially in his early stages, is very often a matter of fads and fancies. The actual necessities are few. Yet they must be of the very best quality and most suitable for the purpose required. Cheap ropes, for instance, are an abomination, and numerous fatal accidents have been caused by their use. Minute details of equipment are a matter of personal choice, and the meticulous advice of many modern authorities is one of the beginner's first puzzles. As a matter of fact, the real requirements are simply a rope and an ice-axe, convenient foot-wear, and suitable clothing, including snow-goggles for the Alps. Numerous smaller details which have, in the writer's experience, proved useful and perhaps amusing will be mentioned under separate heads in due course.

Of equal and even greater importance is the climber himself—his individual equipment, both mental and physical. The writer holds strong views that climbing is only suitable for those who have reached an age of discretion. Boys may be taken out by their experienced elders, but before the age of twenty-one serious work, such as leading, should not be undertaken. The question of over-straining the bodily powers, though this may prove serious, is not in mind here, but rather the youthful lack of responsibility. The sad records of any public school which has bird-nesting crags within convenient reach will accentuate this.

On rocks boys will be boys and the spirit of competition cannot be eradicated. Amongst those of saner age, even to the years of second childhood, this same tendency is prone to emerge. Lucky the man or woman who is equipped with enough discretion to keep it under control. The climber may not only be a danger to himself, but his example to others may lead them into the gravest risks. Mountaineering is the finest sport in the world and justifiable a thousand times over. Danger to life and limb is its only drawback. One slip or thoughtless action may turn the joy of the heights into the sorrow of the depths. Good judgment, constant care, and unselfishness

should be indispensable items in the climber's outfit.

As regards physical and bodily equipment, there is no need to be endowed with unusual strength. Climbing is far from being a sport only for the strong. Powers of balance and knack count for more than strength. A little muscle is a useful thing, especially in the right place, but many of the finest cragsmen of recent years have had no more than the average muscular development. In mountaineering, mind is mightier than muscle. It is very doubtful whether gymnastics are of much use to the climber, but after considerable experience one's opinion is rather the reverse. More than one well-known expert has spoiled his neatness and effectiveness by an artificial muscular training.

Thus let not the weaklings lose heart, for climbing is the world's healthiest sport, and exercise amongst the purest air and most strengthening surroundings may confer untold benefits. A great mountaineer, whose name is world-famous, began as a consumptive in search of health, and innumerable cases of striplings changed almost to Samsons have come within the writer's experience.

Of course, common sense must be used to guard against over-strain, and the man who has a weak heart should never lead. Mysterious

Cutting steps up an ice-couloir on the Fünffingerspitze

accidents, where the leader has fallen for no apparent reason, have doubtless been due to this weakness of bodily equipment. A notable instance of this was the loss of Norman Neruda on the Fünffingerspitze. Again, weakness of this sort may militate against attaining great altitudes, and many friends of the writer have had to be content with expeditions under 12,000 feet. This, after all, to the true enthusiast is not a great loss.

It has often been said, "I suffer very badly from giddiness; I shall never climb!" This is entirely wrong. This defect can be overcome, and in practice it soon disappears, even in really bad cases. Many have suffered in this respect, including the writer and innumerable companions who are now experts.

However, the ideal party is one in which every member is perfectly sound in wind and limb; it adds to the pleasure of attack and conquest to be roped to friends thus equipped—tried and not found wanting, or panting.

Boots and Foot-wear.—Sound feet are the climber's first necessity; these and the knowledge of how to use them are probably the most important of all equipment details. The expert is distinguished by the use of his feet, not his hands. Good mountain boots, properly nailed with abiding nails, are difficult to obtain. Cer-

tainly the best of all are made in England; there is no need to send abroad either for boots or nails. Many of the Swiss guides know this nowadays, and send accordingly to a small town in Lakeland. From Keswick also have come the boots for well-known expeditions to the Caucasus, Spitzbergen, and Mount Everest. The writer is loth to mention names, but to do so here may be the best way to help the beginner. In his earliest mountaineering days the writer was fortunate enough to discover a clever artisan who was anxious to experiment and learn. This was Mr. H. Harden, of St. John's Street, Keswick, and nowadays his handwork on footwork has touched mountains almost everywhere. Numerous other makers advertise in the various climbing journals, and another well-known mountain boot specialist is Mr. J. Carter, S. Molton Street, London, W.1.

Great skill and knowledge are necessary in the nailing of the boots, otherwise the nails are soon lost. The first point is to have the right leather for the sole, and this must be of the very best quality, specially prepared as well as seasoned. The really efficient nailing involves some trade secrets, but it is well to know that no holes should be bored in the soles; the nails should be driven direct. Certain proprietary makes of much-advertised boots for the moun-

Mainly a study in foot-wear. The central boot is nailed with the Tricouni type, on the right is the open style of nailing, on the left the well-known method recommended by the author. Scarpetti and rubber shoes are seen behind.

tains have soles that soften, contract, and expand, especially on snow. They hold water, but not nails.

The scheme of nailing as mentioned first in "The Complete Mountaineer" has become a much-favoured standard, and this is shown well in the accompanying illustration. A set of overlapping outside nails are fixed round the sole. In nailing these, the plan is to begin at each side near the heel and meet at the toe, where a "key nail" with a long stem projecting through the welt joins and holds the two series of side nails. When thus used, the outside nails have short stems and there is no need for them to go right through the edge of the sole. Another method is to fix the outside set about half an inch apart round the sole, and in this case the nails must have long spikes in order that they may be driven right through the edge of the sole and hammered over. The nails in this case do not support each other, but stay well if skilfully done.

Regarding the inner nails the writer strongly favours a row of sparables set close to the outside edge nails and driven to the same level. These are of tremendous use in steadying the foot on small footholds. The idea is that both rows of nails should grip at the same time. The square-headed stud kind of nails

may be used for the inner part of the sole, and in the writer's opinion and practice these have proved better than the large clumsy hob pattern. The latter last longer, but it is better to renew the small variety if they wear too quickly.

More than one inventive genius has marketed new and freakish patterns of nails, sometimes attached by small nails or screws. These, though perhaps an exception may be made of the Tricouni method, in general practice have not proved satisfactory.

The heels are preferred low, with an edging of outside nails, and the larger hob nails give good support in the centre. The uppers are best made of fine zug leather or soft chrome, and if they are cut fairly high, they support the ankles as well as protect them. The tab should be one-pieced with the back of the heel, and the tongue so sewn as to be watertight to the top. It is a good plan to have the boots made just large enough to accommodate a cork sole; and spare sets of these are comforting if the boots become waterlogged, in wet snow for instance. After such an expedition some dry hay or even straw stuffed into their interiors conduces to shapely and supple drying.

For oiling, many weird mixtures are used in mountain hotels, but sperm oil is as good as any, excepting perhaps collan oil, with which

motorists will be familiar for clutch dressings. Finally, in this section, the tendency to have lighter climbing boots is a distinct advance. Large, heavy men need to be shod to match their bulk, but for a normal or small cragsman the workmanship should be on a lighter scale.

Rubber shoes are much used nowadays for British rock climbing of exceptional severity, and this is their only justification, though in the Dolomites they may be used as standard footwear. In a following chapter this matter will receive full attention. Probably the best kind for average use is the black rubber-soled variety with canvas tops. These are commonly known as "plimsoles" and only cost three or four shillings the pair. The cheaper kind with unstamped soles are not as good. One pair lasts about a week's continuous climbing in the Dolomites, the most expensive qualities scarcely survive longer, and "plimsoles" have also the merit of easily fitting into an inside pocket.

Crampons, steigeisen, or *climbing irons* are a series of metal spikes fixed on a metal framework and the whole is attached to the boot somewhat in the manner of the old-fashioned wooden skates. On rocks they have been tried and found useless, but on hard snow and ice-slopes set at easy angles they have distinct advantages. Theoretically they are magnificent, but some-

how or other British mountaineers in general. have never favoured them. The same may be said of Swiss guides. They save step cutting to a considerable extent, and after some practice quite steep snow-slopes can be walked upon with comparative ease. The point is that each member of the party must have crampons, otherwise steps require cutting. A well-known guide told the writer that even though crampons were worn, he generally would cut steps for his patrons. Crampon parties are notorious for unpleasant language, for it is seldom that some defect does not arise in use—some part of the fitting is forgotten or something breaks. There is more than meets the eye in the use of these aids, and strange disasters have happened whereby whole parties have been swept down.

Puttees are better than gaiters for the legs, with a view to keeping the snow out of the tops of the boots. Otherwise they are scarcely advisable, because they are very prone to affect the circulation. The writer would always carry them in the pockets until reaching the soft snow. For long exposure at very low temperatures to severe cold they may be wrapped all round the nailed boots, thus preventing that trying chilliness which sometimes spreads from the heavily nailed boot-sole to the foot. In stormy weather puttees may also be used as mufflers for the neck

or as head wraps. Knitted anklets or those of the elastic kind supplied by sports outfitters are a comfort in keeping small stones out of the boot-tops.

Clothing for the mountaineer is of vital importance. As regards homeland climbing, little need be said. Woollens should be worn next to the skin, and for outer garments the usual plan would apparently be to use up all old disused details. Discarded army outfits and tunics have been much in evidence and the appearance of many a cragsman has become deplorable. Of Gunga Din Kipling wrote, "The uniform he wore was nothing much before and rather less than half of that behind," and the same might almost be said of a few climbers. Rocks rough-handle any kind of clothes badly, and though outfits more adaptable to Piccadilly than the Pillar are inadvisable, the demands of respectability are worth consideration. Lady climbers are beyond reproach in this respect, but the writer wishes they would wear short tunics.

At some of the centres the landlord keeps a store of climbers' cast-off clothes which have become a sort of public property for a "dry change" to be used by casual visitors and others. Some are very casual and exchanges are not unknown. Frequently quite good suits are left

behind at Wastdale Head, and after an Easter holiday a well-known Oxford don who is somewhat exclusive in his colour choice decided to leave his climbing garments for the general store. Next term he was astonished to meet his exclusive tweeds in the "High" worn by an undergraduate. He was not easily persuaded that exchange is no robbery.

For climbing above the snow-line the clothing question is a more serious matter. Extremes of temperature must be provided against, and closely woven clothes, largely of woollen basis, are best. No linings are advisable, as these make drying difficult and hinder porosity, which is really an aid to warmth. In high winds the ideal is to keep the wind out, and this is best done, not by using many thick garments, but by having a thin, impervious outer covering. For this probably nothing can beat the Government aeroplane fabric, the woollens being donned underneath.

Pockets are necessary nuisances, but these should be strong flannel-lined and made snow-proof as far as possible. To retain buttons is troublesome, and for the sleeves, for instance, it is best to keep out wind-driven snow by tying shoe-laces or string. Spares of these and safety-pins are good friends in time of need. Whether trousers or knickerbockers are used

can be a matter of choice. Guides favour trousers on snow expeditions, and tie them round the boot-tops with string or anything handy. Sometimes puttees are used. On steep rockwork the knees are a vulnerable point and long stockings may be a comfort when trousers are worn. Knickerbockers are best with double knees and seats. Sweaters should be worn under the coat; as an outer covering they are especially a nuisance on rocks, a feature which applies to all woolly outer garments such as rough tweeds.

The *Alpine hat*, usually of felt, with its broad brim and high crown, is a common sight nowadays. The broad brim acts as a good shade for the face from the direct sun's rays, but on steep rocks it obscures the upward view. For average use in Britain an ordinary cap is best; but in winter-time and for the changeable conditions that prevail on the higher Alps a Jaeger type of woollen helmet is indispensable. A woollen comforter round the neck justifies its name, and, if used in conjunction with the helmet well pulled down over the chin, protection is complete.

CHAPTER III

EQUIPMENT: MAINLY THE CLIMBER'S OUTFIT

The rope is almost the simplest detail of equipment to describe. There is only one make to recommend, and that is the famous Alpine Club rope made originally by the late John Buckingham and now produced by Mr. Arthur Beale, 194 Shaftesbury Avenue, W.C. It is a three-strand structure of the best manila hemp, and is made practically proof against damp and rot. Lengths of 40, 60, 80, and 100 feet are usually in stock, but for average work a length of 80 feet will be found best for three climbers. In ordinary Alpine expeditions or easier British courses 60 feet might suffice for the same number.

Quite recently an English flax rope made by Messrs. Frost Bros., 342 Commercial Road, London, E., has been tested and used. It appears to be slightly stronger than the famous manila brand, but not so likely to stand rough

A safe straight pull on a steep buttress. The leader has the rope well secured round a projecting rock or belay.

wear on the rocks. This latter is of vital importance. Foreign-made climbing ropes are much inferior, especially the woven variety. One's own rope should be taken abroad and brought home also, for if left with the guides they usually use the long-lasting manila Alpine Club rope for indefinite years. This is a public danger. A light Alpine line is also supplied, but this is mostly used by experts on exceptionally difficult courses, amongst other things to facilitate descent. For the beginner the ordinary rope is advisable, and as it only weighs 1 lb. per 20 feet, the carrying of an extra length, if such is desired, is not a serious matter. For the light leader who, for instance, is leading up a severe, long, steep 80-foot wall, the weight of the heavier rope dangling behind has to be considered, especially if wet.

A spare length is often useful in descending difficult and overhanging places. It can be looped over some projection and the loose ends utilised to facilitate the descent of the last man. On certain famous routes the last man descends safely by keeping one end of the rope tied round the waist, and after hitching the rope over an outstanding rock, he throws the loose end down to those who have, perchance, been lowered over the *mauvais pas*. They can then pay the rope out carefully during the last man's descent to

their level. Finally the rope is either jerked off the projection overhead, or pulled down by hauling upon one of the ends. Beginners might well practise this use of the rope, for if caught in very bad or icy weather on an ordinary course, the practical knowledge may be useful.

It will be obvious that the rope is really a life line for some of the party at various times, and its careful examination now and again is necessary. Sometimes rocks fall upon it and, unknown to the party, jar the soundness of the fabric. There have been a few accidents from the parting of the rope thus damaged. Also a new or almost new rope that has been in disuse for some time should be thoroughly tested. Not long ago an unused rope when opened out on Great End could be pulled apart by the hands at several places. Mice were at first suspected, but later on it was discovered that in some way acid had been in contact with the rope. "Never lend your climbing rope to anybody" is undoubtedly a sound rule to make. Also never ask your best friend for such a loan; refusal is often difficult.

The annoying kinking of a new rope is a passing phase, but the quickest plan is to have an impromptu tug-of-war with the new rope after its first outing. If wet, the length may be stretched during the drying process by tying it

to the stair rails. There need be no nervousness, even on the part of the stoutest mountaineer, about the strength of the real Alpine Club rope. Recent tests show that it will just support an eleven-stone man falling about 9½ feet. This is equivalent to a dead weight of over a ton. It has also been shown that the breakage occurs at the knots. Of course these are artificial tests, and they were originally made by dropping a heavy iron weight over a beam, but on the mountains quite different conditions prevail. The writer has never known a rope break at the knot, nor has such a breakage in any well-known fatal accident come within his knowledge, at least as a cause of disaster. In actual practice a fatal fall has usually resulted in the rope catching across or around some rough or sharp rock and there parting. In climbing, the worst test would be that the leader should fall vertically with the rope belayed round a firm hitch by his companions below. The fall would be roughly double the length of the height climbed and the jar on the rope would be tremendous. The human anatomy could not survive the strain of a high fall. In such a case the rope might break at the knot.

There has been a great deal of theoretical writing on the knot question in which the writer has joined, but the beginner at least might

neglect the question of breakage at the knots. In actual practice most experts do so. The coming loose of knots is another question, but if these are safely and properly tied, the party, once united, need have no nervous feelings about their strength. There are many varieties of knots in use, and diagrams or photographs to explain them seem singularly futile. Authorities say that for fullest strength knots should be tied with the lay of the rope. In his many outings with the theorists the writer has never seen this idea put into practice. The meaning of tying a knot with the "lay" is difficult to explain. The Alpine rope, as made by Messrs. Beale, is called a right-hand "lay." It consists of three strands twisted together, and each strand forms a helix similar to the thread of an ordinary screw. The way in which the three strands are "laid" together is called the lay. In tying a knot, two ropes are practically laid together, and each of these ropes thus forms part of a helix. Thus the general rule with the standard rope is that in the part of the knot which takes the greatest strain the ropes must each form a left-hand helix. When one is looking along the rope, if the twist of the strands runs in the same direction as the hands of a clock move, the twist of the knot should run counter-clockwise.

The Swiss guides, as a matter of fact, have never heard of the "lay," and their ideas on knots are crude but intensely practical. For the end man on a rope either the "bowline" or "reef" is used, and for the middle men the common overhand loop or noose is favoured. For a beginner these knots are good, but he should at the first opportunity ask some expert to explain the makings of the middle-man loop. This is in reality the double fisherman's bend; it has the merit of being simply adjusted and easily undone. Very few guides know how to make this knot, but they are keen to learn. They are prone to error in its making, and the tyro on the Alps should make sure that it is properly made. The same advice applies to the other knots.

The ice-axe is the one important implement of equipment which is not made in England, at least satisfactorily. At present it is advisable to go to the Alpine centres for the best makes, and the beginner would do well to buy his ice-axe when he goes abroad. The ideal method of choice is to take the advice of an expert friend, but the following features may be mentioned and remembered when selection is being made. The balance of the ice-axe is very important; for general efficiency it ought to balance about 14 inches from the head. This is rather

theoretical, and in practice the writer prefers to swing and try the feel of the axe, somewhat like the method used in choosing a cricket bat or a golf club. Like a good bat or club, it should "come up well." The shaft should be made of carefully selected, straight-grained, and well-seasoned ash. The seasoning is of importance, and an axe that has been in stock for a season or two is probably to be preferred.

The head of the axe ought to be of wrought iron tipped with steel. Careful tempering is necessary, and the same may be said of the spike at the other end of the shaft. This should be screwed into the shaft and secured with an iron ferrule. Avoid leathern or wooden rims round the shaft. These prevent the use of the axe in probing for crevasses on snow-covered glacier or testing the holding powers of snow. They interfere also with the free handling of the axe for step cutting.

For the beginner and for general use a light axe about 3 lb. in weight is preferable. Experts who climb guideless will use a heavier pattern and the guides themselves choose one of this kind, the weight being almost wholly in the bigger head and especially in the length of the spike.

This pointed part of the head is that used for step cutting; the adze portion is useful for

"A safeguard in climbing a difficult crack." It will be noticed that the leader has threaded the rope behind a stone firmly wedged in the crack. The rope works behind this during his ascent.

scraping steps in steep snow of any but the hardest consistency. For descending on a snow mountain a big axe has advantages, but for step cutting shortness is preferable. The average has to be considered. A taller man requires a longer axe; for example, a "six-footer" would find 44 inches quite long enough. After trial an axe may be found too long, and in this case it is an easy matter for an ordinary joiner to take a few inches off the bottom and refix the ferruled spike.

A sling or loop for the head of the ice-axe is a necessity, especially on rocks. The leather kind as usually sold is not so good as a piece of whip-cord or thick, strong string tied on with a "clove hitch." Loops made of hemp can be bought in the Alps, but whilst step cutting, anything round the head of the axe is a nuisance. For travelling purposes a leather covering for the head of the axe and a cork on the spiked foot make one less of a nuisance to those encountered *en route*. When out of use for lengthy periods, the shaft may be soaked in pure linseed oil and the metal parts smeared with vaseline.

The *ruck-sack* is too well known nowadays to need much description; yet few are ideal. The shoulder straps should be of leather, not webbing, and their proper attachment to the mouth of the sack adds tremendously to the comfort

and balance of the weight carried. The load should lie close to the upper part of the back, yet interfere in no way with the free use of arms or shoulders.

To the matter of details of equipment there seems no end and personal choice can be safely made. A *folding lantern* is perhaps indispensable, and in winter time in Britain it may prove a real friend in need. In practice frequently one man has the lantern and another the candle, and during the night walk valley-wards after the climb the two may be far separated. The lantern and its details should be one man's charge. The small folding variety known as the "Excelsior Lux" and designed by some Italian Alpinists is an excellent production. In a high wind a handkerchief tied round the lantern has more than once saved the writer's parties from a bad night out.

Goggles are best bought abroad; they should be made of glass of a neutral tint, not blue, and the metal parts should be lined with soft velvet. At home they are not often used, but in the High Alps they are vitally needed. A *compass,* not of the wristlet kind, is a necessity, and it should be mounted in a strong case. A luminous dial has obvious advantages. An aneroid is an interesting friend, though of little scientific precision; its reactionary upward tendency may

lead a party to stay in an Alpine hut until the unexpected fine morning comes.

Maps are interesting to study previous to the holiday, but they are more cheaply and conveniently obtained abroad—that is, for Alpine districts. For the Swiss Alps the Siegfried maps are very fine, and in the Mont Blanc districts the Kurz-Imfeld map is supreme. The Dolomites are covered splendidly by the two easterly and westerly sheets, and these can now be obtained at Cortina or other centres.

A few practical medical hints may be of service. On lengthy snow expeditions toilet lanoline is as good a preventive of snow blistering as anything in the writer's experience. After such outings, the washing of the face with soap and water is inadvisable. A slight rub with a very soft towel followed by a face wash in warm milk is excellent. With some experts a favourite but unsightly sun-burn preventive is Pomade Sèchehaye, a greasy mixture with an orange-brown ingredient that counteracts the actinic rays of the sun.

Boric acid powder and ointment are simple and effective for abrasions. The latter is specially good for tender or blistered feet. Simple medicines of the English kind are not often procurable abroad, and many will suggest themselves as a personal matter,

such as a favourite laxative. Those in tabloid form are the most convenient, and quinine should not be forgotten. Two or three roller bandages and some lint, as well as a supply of adhesive plaster, might be included. Suitable appetising luxuries, both liquid and solid, suggest themselves, but even the beginner might now be left to himself in such matters and in selecting other aids to comfort on the heights.

CHAPTER IV

ROCK CLIMBING—MOSTLY PRELIMINARY

It is a well-considered opinion that rock climbing is the most important branch of mountaineering. If a man has obtained perfect mastery over rocks, he will the more quickly overcome the difficulties of snow and ice work. Balance is the great secret of rock climbing, and once learnt it applies as effectively to the other side of the sport. Steadiness on the steepest of cliffs at great heights is very similar to the same thing on the steepest snow and ice-slopes. Twenty year ago the two schools were irreconcilable. The true Alpinist held strongly that only ice-manship could make the real mountaineer. Nowadays ideas have changed, and we find the Mount Everest Expedition largely composed of rock-climbing specialists, whose experience of snow and ice-craft is almost negligible when compared with former standards. Moreover, the effectives have been mainly men who have learned their craft on the homeland crags. Thus

the writer looks on the rock-climbing chapters of his book as of the greatest importance.

The beginner's first duty is to learn how to approach the crags. Probably most cragsmen begin their career as ordinary mountain tourists. At first they keep religiously to the paths, then they gradually develop a love for the trackless wilds, and in due course fall under the lure of the crags—in fact, they catch the "climbing fever." Probably they have much to unlearn. The rock climber must realise the necessity of reaching the beginning of his climb in as fresh a condition as possible. Frequently in Britain there are from two to four hours' walking before the serious work of the day begins, and usually in the Alps the longer of these two times is much exceeded.

The great point is to start uphill slowly. Imitate the slow, rolling, rhythmic gait of the Swiss guide, who can walk uphill all day without a rest and finish practically as fresh as he started. This is of tremendous importance. The mountaineer never knows what a day may bring forth; for instance, bad weather may develop and find the hurried or over-speeding "freshman" of the morning with little reserve of strength or resource when it is needed. Scores and scores of times the writer has seen this happen in Cumberland. In the Alps it may be

"'Twixt earth and sky on Gt. Gable." A characteristic snapshot of the author on a steep "lead" the downward drag of a long length of rope is well shown.

a matter of life and death; this has been illustrated in the case of innumerable fatal disasters.

Frostbite, again, attacks an overdone party in a most mysterious and surprising fashion. The writer was once raced up an Alpine peak by two young climbers in charge of two careless Swiss guides. They reached the summit first, of course, but both were more or less exhausted by their rate of ascent. The day was bright and sunny. Certainly a chill northerly breeze blew over the crest, but the writer wore neither gloves, muffler, nor anything except ordinary clothing. Still, the two speedmen were suffering badly from frost-bite, mainly in the feet. After receiving the usual first aid by prolonged rubbing with snow, they proceeded valleywards painfully. The case proved serious and later some toes had to be removed. The plan "slow but sure" always tells in the end on the mountains, and when setting forth for a climb this should never be forgotten.

On starting uphill, a slow member of the party should set the pace and the others should keep their place behind. On a narrow path it is the worst of form for a climber to edge his way to the front. Another follows suit, and ere long the pace increases to the point of discomfort, and unless all are old and tried friends there may be no remonstrance. It is the duty of the

leader of the party to see that there is no racing uphill. One of the ordinary pedestrian's first lessons is to learn that the rock climber's pace is a slow one. The speed should be such that ordinary conversation can be continued. Breathing should be possible through the nostrils without the need of using the mouth. On high altitudes this is a serious factor. Severe thirst is largely due to breathing through the mouth.

Certainly there are crucial times, frequently at the end of a long day, when speed is necessary. Fortunate the man who then has the power to meet the need. Thus are "nights out" and their perils avoided. In earliest days the unwisdom of hurrying up to the climb was constantly emphasised, and on one of the writer's latest outings the same lesson was learnt. Two less experienced members of the party, despite the leader's advice, preferred to race ahead, and the "slow walker" arrived some time after the others at the roping place. Of course the writer took the side of the slow man, and noticing the condition of his party and the rocks, prophesied trouble later. This proved true. There was some very poor climbing, and in the final section the use of the rope was weightily accentuated. With proper pace on the lower part of the mountain the ascent would have proved much more enjoyable. Thus let the experienced leader's

advice be law. If an exceptionally severe course is in view, this is absolutely imperative.

It is an excellent plan to walk up to the climb without a halt, and with the slow pace advised it is possible to use the feet in the most effective and least tiring way. It will be noticed that the Alpine guide places the whole tread of his foot on the slope, thus finding support from the heel. This is the correct method.

When ice-axes are carried, there is a right and a wrong method of transport. The beginner proclaims himself by carrying his axe by its shaft in the hand swinging down by his side at arm's length, and almost certainly with the spiked end behind. The danger is obvious. The proper way is to tuck the shaft of the axe up under the upper arm with the head behind the shoulder and the spike held in front. Thus carried, the point will be seen and those in front are unlikely to feel it.

The question of eating during climbs would not appear to be an important one. If water is at hand, lunch is usually taken before the ascent begins, and in Britain this is probably advisable, as it eases transport difficulties. With any likelihood of a long day's expedition, it is always advisable to leave some food and carry it as a reserve. A few raisins and chocolate have frequently sufficed to make the com-

pletion of a big ascent possible. In the High Alps the guides treat these matters seriously. They have their appointed places for breakfasts —second and third—whilst lunch may be a palatial meal. Lucky the amateur who can hold his own with the professional at meal times in the High Alps, of which more in a later section.

In the carrying of loads, these may be distributed as desired; but the leader, especially if a difficult climb is ahead, should not be allowed to carry anything on the way to the climb or upon it. Everything should be done to conserve his strength. His is the responsibility for success, and once the leader is appointed, there should be no question of changing places on the rope. In every party, supposing all begin level as novices, there is certain to be one special leader evolved, a man who shows some decided gift for first place on the rope. When the testing-time comes this will be accentuated, and the mountains themselves, ofttimes with their rough handling, have a decided way of making men know themselves. There must be no spirit of competition on the actual climb.

If the leader is selected, and in some situation finds himself unable to surmount a certain crucial difficulty, there should be no question of another member of the party taking his place. Numerous catastrophes have been due to this.

The terrible fall of four experts on the face of Scawfell Pinnacle followed the change of leadership. Undoubtedly the right man was leading on this occasion. Why he changed places and allowed a less experienced companion to attempt the desperate ascent of the hitherto unclimbed pitch where he had failed is a mountain mystery which will never be solved. There may be a temptation to forget this advice on easier climbs, but its soundness is undoubted at all times. The beginner should be orthodox on this point, and if his friends have the right spirit of true mountain comradeship, the happiness and success of his and their climbing career will be promoted. Selfishness must be curbed. Once the rope is tied on, the party becomes a human unit with a purpose to overcome some of the strongest of Nature's forces. Every member must do his best, and the greatest joys of climbing are when, with the summit attained, each one feels that he has had a share in promoting success.

CHAPTER V

ROCK CLIMBING—MOSTLY PRACTICAL—THE FIRST STEPS EXPLAINED.

It is not unusual to meet a would-be climber whose ideas of the use of the rope are peculiar. A friend was recently taking a beginner up the south-east gully on Great End, and having reached the top of the first pitch he hauled in the rope and called down to the novice, "Come on!" "All right," was the reply. But nothing happened, and the dialogue was repeated. Then the leader became anxious and asked if his charge was indisposed. "No!" came the reply, "I'm waiting for you to pull me up. Surely that's what the rope is for!" Thus it may be advisable here to deal with the practical elements of rock climbing.

Most steep cliffs, despite their apparent smoothness when distantly seen, are cut up into ledges large and small. Roughly speaking, the smallest ones afford hand- and foot-hold, whilst here and there a broader ledge or platform may

be encountered where one, two, three, or even more men can find accommodation. To connect up these various platforms or stances is the climber's problem, and if these can be continued to the summit, success will be achieved.

The sections of actual hand- and foot-work between these resting-places are called pitches. Roughly speaking, an open-face route is now under consideration, but practically the same routine is followed in gully or chimney climbing, though the pitches may be of rather a different structure. The ease or difficulty of a course is commonly judged by the amount of climbing between the resting-places, and their accommodation, also by its length and the abundance or scarcity of hand- and foot-hold for upward progress to be made. In other words, the steepest, smoothest, and most lofty rocks are the most difficult.

The beginner should start on easily inclined places with plenty of holds. His pitches should not be higher than about 20 feet. In due course he may become the kind of expert who climbs almost holdless places and pitches of over 80 or 100 feet in height. Again, it may be noted that one short section about 12 feet high of holdless, steep, or overhanging cliff may make the ascent impossible. Such places and others on a bigger scale are commonly encountered, but

they can be passed by movements to one side or the other to attain a place where direct progress can be made. These sidelong passages are called traverses; they may be horizontal or may run slightly upwards or downwards. In the Alps the word "traverse" is also used in a different way, viz. to denote the ascent and crossing of a peak from one side to another.

Now the use of the rope must be made apparent. Supposing the party, composed of three climbers, has reached the foot of the climb, they will tie on the rope. It should be fixed round their waists, not too tightly, but firmly so that it will not slip upwards towards the chest nor obstruct the breathing. The bowline knot may be used for those at each end, and the middle-man loop or overhand knot can be adopted for the central or second man on the rope (see p. 39).

Then the leader climbs to the first resting-place, the second man meanwhile paying out the rope gently, every care being taken to prevent it catching on some excrescence or in any way dragging on the leader during his ascent. Once he has secured a safe standing-place, he should if possible make use of some projecting rock or belay round which the rope can be passed, before the next man advances. This is termed "belaying." In normal situations of no great steep-

On a Doe Crag Buttress - showing a method of belaying the rest of the party whilst the leader ascends a steep stretch.

ness or difficulty this extra security may not be necessary, for it should be noted that the friction of the rope over the rocks as it passes down to the next climber is very considerable. A heavy weight coming upon it in case of a slip is usually easy to hold. In fact, it may often scarcely be felt even if the second man swing off in mid-air from an overhang. Yet in such contingencies a "belay" is strictly advisable.

Then as the "second" climbs upwards the leader will draw in the rope gently, not pulling it unless requested to do so, but simply "feeling" his friend during his ascent. In circumstances where a slip is likely to occur the rope might be held fairly tight, decidedly so if no "belay" is available. Meanwhile the duty of the last man is to pay out his predecessor's rope and watch proceedings. Loose fragments are sometimes detached—perhaps by the rope, so it is frequently said!

The question now arises as to whether there is good room for the whole party on the first belaying ledge. If not, the leader should advance to the next higher stance, his second, of course, paying out the rope meanwhile, preferably also over a "belay," before the last man begins the ascent. Then the last man climbs up with his rope held, as previously indicated, by

the second climber. The course is now fairly begun, and moving one man at a time it can easily be appreciated how safely the ascent may be made, each successive "pitch" being surmounted as indicated.

If some aggressive obstacle bars direct progress, a traverse may be necessary. Slightly altered tactics should advisedly be mentioned here. The rope now is not such a safeguard for all the party as it is in a straightforward ascent. Usually a "belay" should be available during a traverse and in extreme cases the rope passed behind or round a good "hitch" would be capable of supporting all the climbers in case of a complete collapse. On more than one occasion, by reason generally of carelessness, whole parties have fallen and been saved by the rope catching unawares round some projection. They have found themselves hung up dangling over the precipice, but even so, cool and judicious procedure can save the situation and their lives. In traversing, the last man on the rope may have as onerous position as the leader, and in arranging the roping of a party its least reliable member or members should have a middle place on the rope. On difficult climbs a thin crack running across the steep face may afford hand-hold only; this is called a hand traverse. On occasions a peculiar rift may

A stomach traverse in the Dolomites—a useful way of overcoming under-cut ledges.

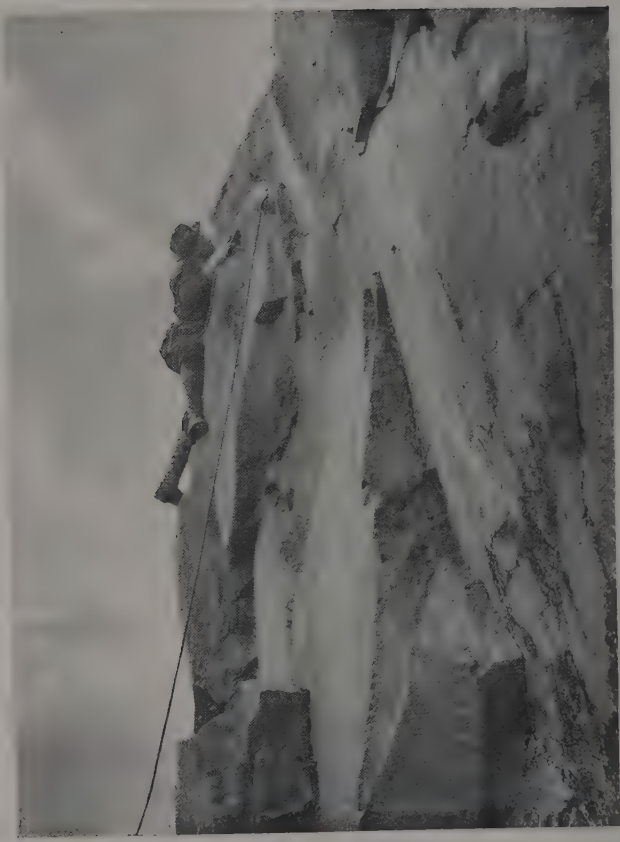
allow a crawl or a stomach traverse to be made, and a chin traverse is not unknown.

During the ascent various formations will be encountered. At times the way may lie up narrow clefts or cracks which only give room for the jamming of an arm or a leg. Frequently quite good support on vertical places can thus be obtained. All widths of cracks have to be negotiated on varying occasions. Those which fully accommodate the whole body and allow the back and knees or back and feet to span from one side to the other are known as chimneys.

By thrusting and jamming upwards, usually facing across the rift and using the back on one side and the feet or knees on the other, vertical progress is possible, even if holds are few and far between. Sometimes in chimneys it is best to face inwards, whilst experts frequently surmount steep sections facing outwards with the feet on the separate retaining walls. There is room for a great amount of skill and judgment in chimney work and the methods used. In one section it may be preferable to face the right wall; then perhaps a smooth bulge ensues on that side and one's back is on some small ledges on the left wall. Thus a turn has to be made. This change of tactics is generally an awkward move in a chimney, and before starting upwards useful inspection should be made of the struc-

ture. It is better to begin in the lower part facing apparently the wrong way and finish the upper part on the best of holds, unless the change can be made safely and untiringly. Long chimneys may be a severe tax on the strength, for there is much resistance from the friction of the clothes on the rock walls.

In chimneys the beginner will make the acquaintance of chock-stones. These are pieces of rock of varying sizes, that have fallen generally from above and become jammed in the cleft. Some are large enough to roof the whole breadth and bar the exit. Others are small and become fixed in the back or narrow part of the chimney. If firm, and this point should be carefully tested, the latter kind give capital hand- and foot-hold. The final chock-stone, which so often blocks the top of a chimney, may require careful negotiation. It may be easy to "back up," with feet and knees on one side and back on the other, in comparative comfort, despite even the overhanging nature of the place, until directly under the overhanging chock-stone. It will be obvious that an outward movement has now to be made, and the arms may have to do some work when holds overhead have been found. Yet the feet should not be forgotten. It is bad climbing to swing out in such places. The position is frequently sensational, and some discrimination is



The leader safeguards himself on a steep face. The rope is hitched behind a good projection on his right.

needed in finding and using the proper holds. Such places cannot and must not be hurried, specially by beginners; in fact, only the shorter, easier chimneys should be tackled in the novitiate stage.

Common sense and strategy in the helpful use of the rope are always wise and always justifiable. Beginners should practise a very useful safeguard so often advocated by the writer. The chimney is usually a definite, straight-ahead problem, and the first thing is for the leader to solve it safely. Nearly always in a steep chimney there are chock-stones jammed somewhere in the rift with open spaces behind them. In overhanging places, if the leader feels the insecurity of making a certain move, he can untie the end of the rope, push it up behind the firm chock-stone, let it fall down over the front, and tie it again. Thus if the chock-stone is firm the leader is in a comparatively safe state for further advance. A slight slip would only mean a fall as far as the chock-stone. This method gives confidence and a comforting sense of security, especially on high "leads" when friends are far below. It should be noted that the rope thus used must be pushed up from below and behind the jammed rock—not in front. If the latter plan is used it will be seen that the leader cannot climb beyond the belay, because the rope

tightens round it. If the proper threading method is used and the rope works freely, he can ascend as far as desired. Then after those below have untied, the rope can be pulled up and flung down again on the outside of the chock-stone. The rest of the party then ascend in the usual manner.

On most standard courses slabs will be met with, and the term is generally used to denote stretches of rock inclined at considerably easier angles than vertical. Their appearance is frequently deceptive and they afford a good test of style and neatness. As usual the feet do most of the work, and much friction hold can be obtained by keeping the clothes in close contact with the slabs. A slip on these places may not seem so dangerous, but it can have surprising results, for a tumbling climber is bad to stop on the simplest slope. Belays, even if present, are apt to be unused on easy-looking places, and these are the times when a beginner is especially prone to be caught unawares. Always remember that it is the unexpected that befalls. Most mountain disasters happen on easy places, and far too commonly at the end of some difficult climb.

The novice may be puzzled with the use of the words "arête" and "ridge." They are used somewhat loosely to describe a buttress where

The leader making a hand traverse — this is on the famous *mauvais pas* on the Pillar Rock—North Climb.

two walls of rock rise on either hand and form a narrow crest. An arête is usually decidedly steep, comparatively short, and composed of rock; whilst a ridge, as in the Alps, may be of greater length, set at an easier angle, and consist of ice and snow as well as rock. Frequently gendarmes, towers, and pinnacles bar the direct way along a narrow ridge and entail difficult climbing where the use of the rope is important. Sometimes these obstacles are surmounted direct, but more frequently traverses on one side or the other are preferred, until the upward way can be made again to the crest of the ridge. A party of beginners should treat these traverses warily and as a rule keep well in touch with the crest of the ridge. A simple and homely illustration is the Crib Goch Ridge on Snowdon. Many parties are unwilling to keep on the exposed upper crest and very frequently get into difficulties by following along the southerly flank of it.

As a rule, the crest of the ridge, by natural weathering, has the soundest rock, and there, at least, there is less risk of falling stones. Sometimes a ridge may be as narrow as almost to merit the name of "knife-edge," and if vertical, these places require special methods. They are often called "ribs," especially in North Wales, where their ascent forms part of many a route.

The swarming-up method is effective but tiring, and nailed boots can, on occasion, be used to kick small foot-holds on the sharp, fragile edge of the rib.

There is a vital point which should be kept in mind on these and similar places regarding the use of the rope. The leader should be as directly as possible above his companions when they are following him upwards. On places with a delicate balance, it is always important to avoid the slightest sideway pull on the rope, for the climber can be dislodged with surprising ease.

Gullies might be described as chimneys on the biggest scale. They are the great rifts that split the faces of most precipitous mountains, and they vary in steepness considerably. Their interest lies mostly in overcoming the pitches which are formed where huge boulders, often as big as a small house, have fallen and become jammed between the walls. Some of these are very impressive with their tremendous overhanging capstones looming overhead —often over a hundred feet high—and a deep black cave receding far under the great boulder.

There are gullies of all shades of difficulty, and many abound in short, easy pitches most adaptable to beginners. They generally have the merit of giving a definite route, for having once entered into their recesses, any exit, except at

the summit, may be more or less impossible. Gully climbing has immense fascination and variety, but it should be unmistakably understood that it is almost entirely a development of British climbing. Gullies in the Alps are likely to be dangerous death-traps, for they are the natural drain-pipes down which the great peaks send their refuse. No climbing skill can avail against falling stones and ice; they are to be avoided. Apart from human agency, in British gullies the only falling thing usually encountered is falling water, though the writer's party once had a narrow escape from a falling bedstead. This was in the Great Gully on Snowdon, which has been spoilt by becoming the rubbish-shoot for the summit hotel.

Beginners should realise that many of the pitches in gullies can be climbed in various ways, and some skill is needed in picking out the easiest; but some hints for dealing with them will be given in the succeeding chapter. Many impossible-looking pitches have "through routes"—that is, a way through and up the cave under the chock-stone until an opening leads to the screes above and beyond the pitch. It is not uncommon for these openings to become blocked by rocks which have fallen from above. In some cases they can be cleared, but in others the climber may find himself turned back to

another and more difficult means of ascent. The famous second pitch in Deep Ghyll on Scawfell is a good example of this.

The beginner's first steps will be in following those of others. In other words, he will find all the famous climbs—in Britain, at any rate—well marked by boot-nail scratches. It is astonishing how long these traces last, and a route which may not have been climbed for five or six years will have distinct scratchings visible. Yet in following these scratches up a given course it is well to use discretion and good judgment. Roped members of a party sometimes try variations after the leader has reached the top of a difficulty, and their wanderings may mislead others to mistake the proper way. The crucial section of some pitch, though usually such a place is not suitable for the tyro, may be scratched bewilderingly because the leader himself may have tried alternative ways of overcoming a trying place.

Again, in tackling any given and definite obstacle scratches may be noticed in most awkward positions. It is unwise to attempt to solve any stiff concrete rock problem by using the holds that are scratched. A tall and a short man will use entirely different ledges for the feet, and the beginner must learn to climb his pitches by the method which is essentially his own.

Finally, a hint may be given here to the beginner who is taken up a climb by an expert. Watch carefully his methods, and especially note the use of his feet in starting any crucial move. Often it is necessary to start with the right or proper foot, and diligent note of certain important holds used in the upward "lead" will enable the following climber to mount with greater ease and safety.

CHAPTER VI

HINTS TO CRAGSMEN—CLIMBING DOWN

With the exception of one or two famous ascents with the late O. G. Jones, all the writer's rock experience has been gained as the leader on the rope. During this long and still active climbing career numerous useful wrinkles have been learnt and in this chapter these practical aids can be mentioned. Undoubtedly there are two outstanding and vastly important maxims of advice for the beginner—these are, firstly, climb slowly, and secondly, rely on the skilful use of the feet, not the hands. At the start there is an almost irresistible tendency to "rush" a steep stretch of difficult rock work. The idea is well expressed in the words so often used—"I want to get it over!" This is entirely wrong. "Slow but sure" must be the slogan of the safe climber.

Each movement should be carefully considered. Up to a certain point the balance may be perfectly preserved in relation to the avail-

able holds; then an apparently good hold for the fingers may tempt the cragsman to forsake the slow balance method. There may be no support ahead, and he will find himself hung up in such a position that return is, to say the least of it, ungraceful and unpleasant. Each forward move should be made with slow deliberation, a change of holds only being made when the new situation is proved sound and promises continuity. Moreover, it is a reliable rule not to push ahead up any excessively desperate place where return is impossible. Some supervening difficulty may necessitate descent. The safe leader always reckons on having a sound way of retreat open.

With a moderately vertical twenty-foot wall of rock in front and overhead, the climber's first object should be the inspection of hand- and foot-holds that seem available. Seen from below, things are seldom as they seem, yet with practice a quite sound scheme of attack can be formulated. The beginning is most important, for thereon the strength to tackle any increasing difficulties higher up can be conserved. Never persist if strength fails on the lower part of a pitch that obviously has a stiff finish.

Very frequently a standing-place can be obtained halfway up a steep place, where a halt may be made, despite perhaps the most sensa-

tional situation. The arms, both together or one at a time, should be lowered and relaxed, because the principal cause of fatigue of the arms is the lack of circulation due to their being held above the head continuously. The feet seldom suffer in this way. The point is again accentuated that the legs are the strongest climbing appendages. They really should bear the brunt of making upward progress, and the arms should be mostly used to keep the body in position. This is the ideal method, but in the thousand-and-one positions in which the cragsman finds himself, the arms and hands are bound to come into strenuous use. Strong direct pulls on hand-holds alone are very seldom necessary, and should be avoided. Numerous body muscles help in the lifting. Stylists who advise against the use of the knees should not be treated seriously. The writer once saw a famous advocate of this and similar theories rudely cured on the "Nose" of the Pillar Rock.

Rock climbing of the easier Alpine variety may be done with hands and feet alone, but a moderately difficult homeland course of to-day may call into play practically every muscle and part of the human anatomy. An unshaven chin has proved useful more than once, and very often the back of the head pressed against a projecting rock will hold the body in position in

a chimney or crack, whilst the hands are left free for some ulterior grip.

Sometimes a position may be reached, perhaps in an open chimney or broad cleft, where to make upward progress seems scarcely possible. No suitable hand-hold or foot-hold may be available, but very often a useful lift upwards can be made by resting the palms of the hands downward on some ledge about breast high or lower. A downward thrust on this ledge may raise the body until a hand can be placed overhead to grasp a spike of rock which has been out of reach. At home the idea may be practised by putting both hands on a strong mantel-shelf and so lifting the body until a certain point on the confronting wall or mirror can be touched. Few realise that, given suitable conditions, some splendid balance training may be had on the homely mantel-shelf. To attain a standing or even kneeling position on some may be impossible, yet it is a striking lesson in the use of tiny holds that one small picture-hanging nail in the wall overhead may give just a sufficiency of touch to make success possible. But beware of falling pictures and unsympathetic relatives.

There are several points worth remembering when upward progress seems barred by holds very awkwardly placed or almost lacking. A change of feet on a crucial foothold may entirely

change the outlook ahead and so alter the balance that a distant ledge can be attained by upstretched fingers. Crossing the feet is always ungainly and usually risky. It is better, with some slight "push" support, or hand-hold, to keep the body in place, whilst with a slight spring one foot is slipped off the hold and the other is moved into its place. This is one movement of many others that can be practised on boulders or faces of low rock.

Another opportune hint in rock climbing deserves notice. Any holds in a smooth, narrow crack at upstretched arm's length may be lacking; yet a capital upward pull may be got by thrusting the hand as high overhead as possible into the thin crack and then doubling the clenched fingers. Even twisting the hand and wrist in the crack will frequently afford excellent support. Of course such schemes are not for thin-skinned folk, and manicure enthusiasts are seldom mountaineers.

The expert proclaims himself by the skilful use of his feet, and especially so on sloping foot-holds—that is, the kind that slope down to his disadvantage. The secret of this really is that he places his foot flat down parallel with the hold. The ankle may seem uncomfortably bent, but the firmness and comfort of grip on a sloping foot-hold properly used is remarkable. Con-

fidence to stand boldly on such places scarcely comes during the first few days of a mountain holiday, but with physical fitness this feeling of security also develops.

It is in the use of sloping footholds that rubber-soled shoes score greatly, and this modern development tends to make rock climbing easier. Perhaps rock gymnastics is the better word to use. Numerous exceptionally severe courses, mostly in Lakeland and North Wales, have been made, and many of these would be impossible in the ordinary and proper mountaineering footwear—nailed boots. Mountains and moisture are inseparable, and in wet and stormy weather or under icy conditions rubber shoes are practically useless. Except for specialised rock problems they are of no service in the High Alps or above the snowline. In the Dolomites the writer and his party frequently used them successfully in recent guideless climbing. They were preferred to the scarpetti, or rope-soled boots, which are the standard Dolomite wear. Yet the need of perfect weather conditions was accentuated and severe cold would obviously tend to frost-bite attacks.

Except for a very few and select section of specialists, rubber shoes should have no appeal. Their principal advantage is that they make fine-weather cragwork easier and extend the

climbing career of the veteran. There is one vastly important point that should be noted regarding their use. The beginner should never learn his craft in rubber shoes; nailed boots should be his sole wear. The former plan teaches wrong and unsafe methods for real mountaineering. Some of the writer's worst frights have been caused by encounters with "rubber folk" when bad weather has supervened and nailed boots had perforce to be used. Thus let the cragsman become expert in the use of his properly shod feet, and in due time he will benefit on exceptionally severe courses by the use of rubbers.

Reference has been made in the previous chapter to simple safeguarding and help for the leader. The beginner will soon realise the importance of having a reliable leader at the top of a difficult pitch. The way in which he gets there affects the safety of the party, and it is the duty of the second man on the rope to help judiciously. Good "backing-up" makes many a doubtful ascent justifiable. As long as the leader is within reach of an upstretched hand his foot may be steadied on some precarious support. Sometimes the head of an ice-axe jammed against a smooth face on some small excrescence will give support, but this is almost invariably inadvisable.

Giving the leader a shoulder—combined tactics for overcoming an almost hold-less face.

In touching a leader's foot with the hand or anything else great discretion and judgment are necessary—except by definite request this should never be done. To take hold of a climber's foot when it is swinging in mid-air and thus attempt to place it on a foothold may prove fatal. The balance of the man overhead is almost certain to be upset. Another less dangerous, but equally tantalising habit is far too frequently used—that is, the shouting up of advice regarding available holds that seem, from below, to be the very things needed. Such advice is generally useless. The man up above is in the best position to select and should be trusted to judge his needs. Unless he asks for advice, it should not be given by those below.

Real help may be rendered to the leader on some holdless step or stretch by "giving him a shoulder." This is a common aid, and especially on new or pioneer routes it may prove almost a necessity. With the second man standing on some firm ledge, preferably belayed by the rope near his waist to some projecting rock, the leader can stand on his friend's shoulder or shoulders and thus gain a higher range of hand-holds from a comfortable stance. The writer has sometimes found the cranium of a hard-headed "second" impervious to nailed boots; whilst his own nose bears slight record

that once the late O. G. Jones found foot-hold thereon. Sometimes in overcoming some smooth, impending chock-stone the second climber, whilst upholding the leader, can be held by the third man on the rope, the latter being more or less safely ensconced in the cave under the big boulder. It is not often that two members of a party, one above the other, have formed a human footstool, but long ago it was tried in Walker's Gully on the Pillar by some unsuccessful pioneers. Those taking their first steps in climbing should avoid such places.

An excellent hint for the leader on difficult places is to find some small spike *en route* over and behind which the rope can be slipped. Often the leader can obtain a few minutes' rest on some very exposed place by thus hitching the rope and securing himself in comparative safety. Those below can, if necessary, hold the other end of the rope tightly. Should a descent become advisable from such a situation, obviously the rope working over a projection can be used to prevent a too sudden passage to those below. Considerable judgment is required in using this belay method on traverses, and it is well in cases of descent to make sure of the vertical line. On one occasion the writer and his brother were roughly knocked about by a leader who swung down pendulum-like across

the face and into a cave below a big chock-stone.

It has often been asked whether a knowledge of geology is any use in climbing. Authorities, mostly theorists, differ on this point, but the writer has found it of no service. In many climbs with famous geologists the science has never asserted itself in any practical way. Loose structures certainly interest them most, and the fact that occasionally no stone has been left unturned in their efforts summitwards may prove trying to those below in a crumbling gully. Truth to tell, loose sections on a mountain, big or little, may occur unexpectedly to the most skilled scientist, and the climber needs all his skill and care on such places. No thoughts can be spared for fossils or faults—only faults of judgment matter. Great discernment is necessary in the use of loose holds. The general plan is to distribute the weight as much as possible on as many holds as are available. Loose rocks play strange tricks, and the beginner should, as far as possible, avoid notorious places. Large pieces as big as a cenotaph will frequently stand firm whilst one man mounts over them and the following climber may bring down the whole mass.

On doubtful places the discerning eye and hand can generally detect these easily, and every hold should be carefully tested before using it.

Again, footholds are of paramount importance, and luckily in ascending the hands have, first of all, a chance of testing these. Wedge-shaped holds that are stuck in an upright position in some deep cleft are often safe if pulled upon discreetly, and may give perfect foot-holds on the upward climb.

Large, loose pieces will give warning to the ear by their hollow sound, and though there have been miraculous escapes through the falling of these, such events are very exceptional. In the Alps rocks and stones fall as a result of natural weathering, but in Britain such events are very rare. The risk, despite appearances, is, in the writer's opinion, almost negligible. Nowadays, when climbing is becoming so popular, it behoves all who wander over the mountains, and especially over heads of precipices, to avoid sending down loose stones. It is a joke with some to hurl boulders down a big gully and then call out, "Is anybody climbing down there?"

For novices, gully climbing is the finest training in dealing with loose structures. Usually the bed of the place abounds in loose stones poised precariously. The leader scores in such places. Yet he and those who follow have serious responsibilities. Only one climber should move at a time, and loose coils of rope ought to be carried in the hand, not allowed to

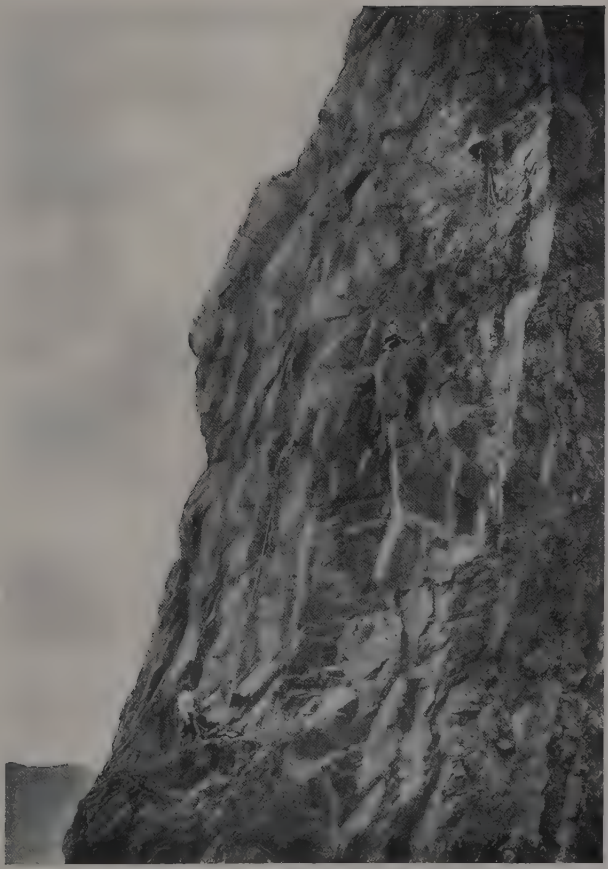
drag through the rubble. Frequently the walls of a narrow gully are fairly firm, and upward progress can be made with feet on each side, thus avoiding the loose interior. The man who dislodges and sends down anything on his companions below should be repentant; it is a breach of mountain manners, be it on a simple scree slope or on the steepest crags. One tiny stone dropped on a friend's head may cause momentary collapse and endanger a whole roped party.

There is a popular idea that climbing down is more difficult than climbing up. As a rule, in actual practice, the opposite prevails. Making upward progress is certainly more strenuous, for gravitation asserts itself more strongly and the friction of clothes on the rocks has to be overcome. In descent the latter is a help and the downward tendency can be checked wonderfully on the smallest holds.

Modern climbing methods in Britain are all against the learning of proficiency in descending rocks. Usually there is an easy walking route valley-wards after the ascent is finished. Several difficult courses may be climbed in a day, but few parties trouble to descend except by a quick and easy route. This is quite wrong if the making of mountaineers is in mind. In the Alps this point is accentuated. The guides

are greatly puzzled to find their patrons climbing up neatly, safely, and at a good pace, but on the descent the opposite prevails. Constantly parties reach the summit in times that make the guides think of an early return to their families and firesides, but in the end, after a lazy time aloft, perchance they just escape becoming benighted.

The beginner should realise this and make a special rule of practising descents. The ideal plan is to return by the route just climbed, especially if it be a long course. In this case altered conditions prevail. The former leader will come down last on the rope and the lowest or first man on the rope has the responsible duty of finding the downward route. To this end he should have noted outstanding features during the ascent and constantly viewed the downward prospect. An instance might be quoted as an example, such as the Tower Ridge on Ben Nevis. This is a moderately easy course, technically speaking, but a real mountaineering expedition which requires considerable discrimination during the descent. It would involve about two-thirds as much actual rockwork compared with that on the Zermatt side of the Matterhorn up and down, and the way would be of similar difficulty to find. There are also innumerable courses available in all districts in which the



The last man descending by a doubled rope. A notorious difficulty on the face of Scawfell Pinnacle. The lower figure is at Hopkinson's Cairn.

beginner should learn the first steps of descent. Some of these are mentioned in Chapter IX.

In descending, the beginner's first impression will be that the rocks appear much steeper when seen from above than from below. When the actual descent has been in progress for a while, the eye becomes accustomed to the conditions, and this impression is somewhat lessened. The same effect is experienced when swinging down on good hand-holds to a lower resting-place for the feet. The ledge generally seems farther away than actually is the case, and the length of reach is surprising. Confidence is frequently needed in the bold downward swing over the abyss, as it were, but the last man down always has the experiences and methods of those in front to guide him.

The rope properly used is of tremendous service. In extremes it will be apparent that the members of a party on a very steep climb may be lowered one at a time to the various stances, and the last man can be helped considerably. Upstretched hands very judiciously used can steady his feet on the holds, and on exceptionally steep places the rope can be hitched or belayed, as explained on page 74.

Instead of using belays on the rock itself, some parties carry a few loops of rope—about a yard of rope knotted—and these are fixed on

some suitable projection. When the full length of rope is run through the loop and thus used, it is easily pulled down after the last man has swung down on the doubled rope. The used loops can be left up above, and these are often noticed in the Alps and elsewhere where exceptional conditions have prevailed. These " derelicts " should scarcely ever be used, for exposure to the mountain weather soon weakens the texture of the rope, despite its apparent soundness.

In many Alpine districts the guides have special iron pitons, usually with rings in their heads, driven firmly into some rock crevice, and these are used for threading the rope to facilitate safe descent. The situation of these aids is not obvious and guideless parties seldom discover them, thus being somewhat at a disadvantage. The writer well remembers forcing a way up a very difficult ice-draped chimney near the top of a famous Dolomite peak. The porter was the only professional in the party, and he was greatly troubled, fearing that disaster would result if the attack were pushed to the limit. The place was climbed with great difficulty, and none of the amateurs enjoyed the summit prospect because of anxious thoughts about the descent. The porter was quite happy. The reason of this was ultimately revealed when we had descended carefully to the top of the

desperate section, and at this point the native was so cheerfully confident that we allowed him to change to the last place on the rope. Then from below and all unroped, we watched him climb down to the level of the icy chock-stone and feel under its edge. The hidden piton was found, and soon, on the long doubled ropes, he came swinging down to us with a broad smile that never came off for the rest of the day.

In descending rocks there are two standard methods; these are—face in or face out. Really steep rocks demand descent with the face towards them, but wherever possible the facing outwards method is preferable. It is usually a good plan to work downwards as far as possible face outwards, and when steep or undercut sections occur change tactics. The outwards method may be more sensational, but it has the very great merit of quickness and every use of the friction of one's clothes can be made.

On big Alpine expeditions many hours of descent over easy rocks will very likely be part of the day's work. It may be "night's work," if there has been unexpected delay, and the party cannot move quickly on the valley-ward way. The beginner should learn to climb down quickly, steadily, and safely, especially by the facing-out method. The plan is not to make jerky progress. Preferably there should be

merely a rhythmic series of downward movements, the body being allowed to progress continuously and the descent checked and governed by a passing use of convenient hand- and foot-holds. Surefootedness—that is, the ability to see the right hold and put the foot upon it with certainty—is imperative in descending rocks effectively.

Attitudes of balance and belay on a narrow crested snow ridge.—Descending the Mönch.

CHAPTER VII

ALPINE BEGINNINGS—SNOW- AND ICE-CRAFT

The first steps of snow- and ice-craft can, undoubtedly, be learnt on British mountains, though for the higher developments of iceman-ship it is necessary to travel abroad and climb above the snowline. The upper reaches of Ben Nevis are within close distance of that imaginary limit line, and there, as well as on the bigger central mountains of Scotland, the best Alpine practice is available, especially about Easter-time. In Britain we have no glaciers or true ice-slopes. Moreover, the weather and the varying forces of Nature have usually not a very great deal to do with the safety or otherwise of an expedition. The effect of sun on our own snow- and ice-bound cliffs is almost negligible by a climbing party; the same may be said of avalanches, though at very rare intervals the latter have been experienced on Ben Nevis. True bergschrunds or crevasses are not encountered.

Yet much can be learnt at home about the

mixed snow and rock climbing which forms such a large part of an Alpine ascent. The negotiation of ice-glazed rocks can be mastered and snow cornices have commonly to be dealt with during a seasonable winter-time. Steep snow-slopes, varying from avalanchy softness to a degree of hardness verging on ice, are generally available in most winters, and step cutting of the first order may be practised. In this special domain of real mountaineering it will at once be obvious that balance is everything, and that art of using it which has been obtained on rocks will be of inestimable value on steep slopes of ice and snow. The whole secret of success is again the use of the feet.

After deciding on the Alpine district to be visited, the beginner's first step will be the choice of a guide. If the advice of some experienced friend is available, perhaps it may be possible to engage a good man in advance. The very best guides are often reserved a year, or at least a few months ahead, and with these the novice need not trouble. Very few, if any, of the guides are good teachers, but those of the highest class and famous specialists are perhaps worst of all in this respect. The only way to learn is to watch carefully every movement and method of the professional and note especially his methods of approach and selection of points of attack. Even

on unknown mountains they seem instinctively to detect the weak places and formulate a route. The intelligent tyro will especially notice this, and questions asked regarding the why and wherefore of peculiar ways of tackling a big peak may be answered, though perhaps not always satisfactorily.

Failing a guide engaged in advance through an expert friend, the best plan is to book one after the arrival, and usually the hotel management will help in this, but some discretion is necessary. A personal interview is advisable, and a good deal can be judged from appearance. Usually a guide who speaks English, more or less, is nowadays to be obtained. Those who tout for jobs at the railway-stations are best avoided, and others who are part of the hotel staff should be chosen warily. The question of payment is sometimes troublesome, but this should be properly arranged and understood. In perfectly settled weather, if a really suitable man is available, an engagement for two weeks or more may be made at, for instance, 30 francs a day, whether any climbing takes place or not. This would include ascents of any of the ordinary peaks, and might, with very good fortune, involve six good expeditions in two weeks. A little extra payment might be required if certain special peaks or routes were included, and this

question should be settled. The amateur would pay for the professional's food and drink during the excursions, and if the guide were engaged away from home, it should be understood who has to pay his hotel bill. Usually the amateur pays.

The other plan is to make no engagement, but pay for each peak by the tariff—that is, the official rate of payment fixed by the guides according to the standard of difficulty of the various peaks round each popular centre. For the average novice this latter plan is probably the best, and by using some tact, if a satisfactory guide is met with, he can be reserved for a succession of ascents. It may be noted that riches are not showered upon guides as in pre-war days, and there are more first-class men available. No longer does a wealthy climber hand his guide a sovereign to buy a pair of shoe-laces and ask for no change.

There are two principal kinds of expedition that can be made from Alpine centres. One is the single-day outing up some lesser peak, and the other is the ascent of a big mountain which needs two days or perhaps a day and a half. In the former case a start will probably be made about two or three o'clock in the morning, and all arrangements with the guides and for the commissariat details must be made the day

before. The early-morning breakfast of rolls and tea or coffee is a miserable experience and most unsatisfactory for the start of a hard day's work. Everybody is sleepy, but the Alpine novice should be wide awake enough to see that eggs or other nourishing details are ordered and consumed.

The budding Alpinist who has learnt his craft at home will probably feel that the engagement of two guides is unnecessary. This is doubtless true, and a porter and one guide will generally suffice for one or two home-trained men. The guides are very slow to realise this, and the best plan is to have a sort of test climb up some small peak; this is when the one-day outing is useful. Otherwise most of the lower peaks have about as much attraction as, say, a peak in Skye and they differ little from a homeland climb, unless perchance a little glacier work is included. The latter is, on such days, usually not on a large scale.

But it is the big peaks that really attract the true mountaineer. The time of starting can be arranged with the guides on the previous day, it may be before lunch or after, according to the work ahead. The hut at which the night has to be spent will be the first day's objective. In most cases nowadays these are tenanted by caretakers who have a good stock of everything,

including beds, to promote the comfort of the party. In others there is nothing of serious importance provided excepting shelter, a rough cooking-stove with furniture to match, and straw-covered ledges equipped with a few blankets. Firewood may have to be carried up from the highest tree-line. The latter kind of hut adds to the romance and true pleasure of climbing. Many of us, unhampered by guides and formalities, have spent some of the happiest hours of a lifetime in those skyward-perched rest-homes on the heights.

A word should be said here about the Swiss Alpine Club, to whom most of these huts belong. No real charge is made for their use, and all British climbers who visit them should realise it is their duty to join the Club and thus help in the upkeep and the building of new huts. When these places are crowded, the Club members have the first right of using them. Membership gives other advantages when abroad, such as cheaper rates on the mountain railways. There is a British Association of the Swiss Alpine Club, and the hon. secretary's address can usually be obtained from the secretary of the Alpine Club, Saville Row, London, W.1.

To return to more practical matters again, it may be noted that the provisions for the actual climbing day on the big peak are best brought

The leader is seen cutting steps down an icy slope on to the Aletsch Glacier. The second climber is well placed.

up from the hotel in the valley. Most beginners have trouble with the food question, for appetite is prone to disappear or need tempting at the high altitudes. Many may have their own "fancies," and in tinned or bottled things the variety is obvious. The writer has always trusted to cold roast chickens, these with plain bread—not rolls—butter, and cheese may form a sound staple diet. Sweet things are always acceptable on high places and special fruit cakes brought out from England are invaluable. Chocolate is used far too much, for it is very thirst-provoking. Dried prunes are probably unsurpassed in the luxury line, and the stones last indefinitely as a fine thirst-preventive.

In the Alps the drink question is ever present. Water generally should be avoided, especially that tempting limpid variety which issues from the glaciers. Guides make the wine of the country their staple drink, and the amateur may do the same, or take a better variety. The common wine with lemonade added has proved a practical blessing at all times. Teetotalism or even temperance is almost unknown to the guides, and as the amateur has to foot the bill, it is as well to use some tactful advice when commissariat matters are being arranged. The writer's drink bill alone for a single peak was once over five pounds.

The night spent at the hut may be restless; few sleep well in such surroundings at an altitude of probably 9,000 or 10,000 feet. The worrying question of the weather is probably most in mind, and on this largely depends the success of the ultimate climb. Sudden changes occur, and quite frequently any chance of going beyond the hut is negatived. Except on the easiest, simplest, and safest peaks the ascent in bad weather should not be attempted. Good guides are usually dependable on this point, and no effort should be made to influence their opinion until the climber has had considerable experience.

Probably the start will be made well before dawn by candlelight after a light breakfast. The condition of the snow now becomes a vital matter. In settled weather, and with the wind from the north or some quarter thereof, there is likely to be little trouble. After the night's frost on these lofty places everything is firm and solid at the outset, and the plan is to make suitable progress before the sun gets full power. Soon after mid-day, under best conditions, the snow and ice will soften, and most guides arrange their programme so that the hut may be regained about that time of day. Many things arise to upset the best of schemes, and a change of wind to some southerly quarter may alter an

Pigne d'Arolla. Crossing the Chermontane Pass into Italy—showing the correct use of the rope on snow-covered glacier. There is about 20 feet between each man.

otherwise safe mountain into a death-trap. The notorious Föhn wind with its warm breath may loosen the frost-bound rocks or cause great masses of overhanging ice and snow to break away from far overhead. Thus largely are avalanches formed, but their usual tracks are known and well marked, and normally any danger from them is not a serious matter.

On leaving the hut the beginner should make certain that none of his belongings is left behind, especially snow-goggles and puttees. The rope may very likely be tied on before the platform outside the hut is left, or in any case it will be brought into use when the glacier is under foot. It is understood that a sound length of the real Alpine Club rope will have been brought out from England and now used, for the average ropes used by the guides are not so dependable. There may be some simple rock-scrambling down from the hut before the glacier is gained. This may at first be free from snow, or dry glacier, as it is sometimes called. There the leading guide will proceed in front, carrying the lantern in one hand and his ice-axe in the other. The second guide or porter will bring up the rear, and if the party consists of more than three, he also may carry a lantern.

The beginner's first duty is to follow as nearly as possible in the footsteps of his predecessor

and meanwhile carry a coil of rope in his hand. Each man thus watches the man in front, and the coil of rope can be slackened if uneven pace is likely to result in a jar from the connecting line.

In the early morning crevasses are unlikely to be in evidence, but if snow is underfoot the beginner should remember that probably many of these are being passed over unknowingly. The return journey in the afternoon when the snow covering has softened may reveal a different state of things. The early-morning walk may tend to be monotonous, but when dawn comes probably the glacier steepens and eventually as it descends over underlying precipices an ice-fall is formed and soon encountered. A vast maze of solid ice may now gleam in the early-morning sunshine, a riot of frosted pinnacles and crevasses, rent and twisted into innumerable shapes and forms. Here, a good guide shines in finding a way quickly through the puzzling masses of ice. The weak places are usually well known, and previous parties have left some tell-tale traces. Sometimes a way may be made up the centre of the ice-fall at the outset, but generally the sides are the weakest places, and the writer's plan in dealing with an unknown problem of this kind has been to keep to the side where most snow is visible. Sometimes it is an advantage to leave the ice and

Sounding the strength of a snow-bridged crevasse on Mont-Collon.

work a way up the side of the glacier, where small lateral or subsidiary moraines often occur.

The glacier ice is of the sugary variety, at least on the surface, and steps, usually at a favourable angle, can be quickly cut by means of an ice-axe. The home-trained beginner will at once find his knowledge of balance and foot-holds very useful. Stretches of real step cutting on hard ice may now be necessary.

CHAPTER VIII

SNOW- AND ICE-CRAFT—*continued*

THERE is no better place for the beginner to practise step cutting than on the easier ice-slopes of a glacier, not actually in the ice-fall but on the lower part of it and well away from any pieces which may fall from overhead. In ice the pick side of the head of the axe will do the cutting and a medium length of hold on the shaft is best, because, besides being better for the balance, an accurate swing is thus made most effective. On easy gradients long, swinging strokes are possible. The size of the step will depend on the steepness and danger of the slope. On easy angles, or where a slip would not be serious, a merely roughened gash may suffice, whilst on the steepest and exposed slopes recesses big enough to hold both feet will probably be necessary.

The steps should be cut in a series of zigzags, and at each turn from left to right or vice versa

Cutting steps on glacier ice—Grindelwald Glacier. The guide at work in characteristic attitude is Christian Jossi.

a large step will be necessary. The secret of success lies in making the steps the proper distance apart in proportion to the incline of the slope. The tendency is to make them too far apart—from nine to twelve inches is an average—and this question assumes added importance if the descent has to be made the same way. The balance may feel entirely wrong with the step at a certain place and angle, especially at the turn of a zigzag, and then it is preferable to make an entirely new step.

It is necessary to practise the cutting of steps from each shoulder both up and down and for traversing. Also it is wise to become adept in passing the leg that is next to the slope skilfully and steadily to the next step. On broken ice-slopes, especially, there is great skill in so planning out the steps that every member of the party finds them in exactly the right place for comfort and safety. Usually each step should suffice to hold the foot when planted sideways in it, and, above all, every one should slant inwards, not outwards and downwards, or the slipperiness of the ice will assert itself. The body must have an easy balance, and the importance of standing well upright and not inclining the body towards the slope will be quickly apparent. In moving from step to step the hand, or the spiked end of the shaft of the

axe, may be used as a "steadier" against the slope. It is, excepting on special occasions, unwise to plunge the pick of the axe into the slope for the uplifting, because this usually slips out when the pull is put upon it.

Most of this advice applies also to steep, hard snow-slopes, though a shorter hold of the axe may be possible and very often the shaft of the axe can be driven deep into the slope. This gives a splendid hold at crucial places and a firm belay. Frequently snow and ice are intermixed, and this safeguard belay should always be applied where possible. On soft snow of the consistency so often encountered during the descent, the ice-axe thus driven into the yielding mass may provide the main means of support. In descending from step to step face inwards its use is indispensable—a characteristic place is the steep snow-cap on the top of the Wetterhorn at Grindelwald.

Presuming the ice-fall on some glacier has been surmounted or circumvented, the party may probably find the supervening glacier much crevassed and snow-covered. The deep rifts in the ice may be treacherously masked, and the important thing now to note is that all the party must never be over a crevasse at the same time. Thus the route must cut at right angles across the crevasses and the lay of these may not easily

A sound belay on a slope of steep snow where steps can be scraped or kicked.

be distinguished. Their general direction in the simplest cases is across the glacier from side to side, but many things may alter this, such as pressure between the narrow walls of some valley or the incoming of small tributary glaciers. The skilful eye can generally detect their presence by keeping a sharp look-out on each side, both distantly and near at hand, for signs of the extended crevasse formation. Also it is often possible to trace a slight dip in the snow over a crevasse, and there may be a deeper shade of colour on the surface.

The guides mostly rely at close quarters on sounding the snow with the spiked end of the ice-axe as they walk along, and thus progress will probably be made over doubtful places. On dangerous sections every attention should be devoted to the use of the rope, and each member of the party should carry the usual coil of rope in one hand and "feel" the man in front. Care should be used to avoid jerking the leader, whose temper is far too frequently tried by this carelessness. When passing across slopes, it is advisable that the waist knot of the rope should be on the same side as the slope. On these upper reaches the importance of treading assiduously in the footsteps of a predecessor will be apparent. The leader has the hard labour of "breaking out" or forming the first

steps, and in crossing hidden crevasses a change from his selected route may mean collapse.

There are few more unpleasant experiences than to feel one's feet suddenly go, and instantly they are dangling in nothingness over the blue-black depths of the gaping crevasse, where icy fragments clatter ominously. Let us hope the unlucky climber goes no farther than waist-deep —the usual thing—for the rope will be instantly tightened by watchful companions, and thus the situation is saved. In case of a sudden break in one of these snow-bridges over a crevasse, the first act should be to fall forwards, with the ice-axe flat across the snow, the idea being to distribute the weight.

The beginner should realise unmistakably that there is safety in numbers on crevassed snow-fields and glaciers. If one climber of a party of two becomes properly engulfed in a crevasse, it may be considered practically impossible for his friend to get him out of the death-trap. Many tragedies have happened in this way. A party of four is ideal for this kind of climbing.

On the upper slopes which lead to the final peaks, rocks will almost certainly be met with and these can be useful in the ascent. Before reaching them a bergschrund may have to be negotiated. This is the specially large type of crevasse which is commonly formed near where

the upper snow-slopes abut against the cliffs. It is due to shrinkage and downward movement of the snow. The passage of some of these rifts is often troublesome, but usually some part is broken away and a weak place formed by débris filling the gap. Sometimes a bridge of snow and ice is available, and this latter may afford a thrilling crossing. An all-fours method may be advisable.

Above this the zigzag course will again be followed and perhaps spells of easy rock climbing may add interest. If there is any danger of small avalanches or other matter falling from far overhead, it is well to keep on the ridge-like sections where the rocks protrude, and if a couloir has to be entered at any point, tumbling fragments might be expected. In many of these there is an avalanche groove down the centre, and this, though peaceful at the moment, ought to be avoided. Should a traverse across it become absolutely necessary, the danger should be recognised, and the rocks on each side made full use of for belaying the party on the full length of the rope.

At times if the angle of the snow steepens and it becomes of a softer consistency, the question of its safety must arise. The whole mass may be avalanchy and tend to slide off the underlying icy or smooth, frozen surfaces. Great judg-

ment, discretion, and experience are necessary to determine the condition of the snow. If rocks are available, it is better to climb up these, though at a greater loss of speed and ease, than risk the snow in the couloir or on the open slope. The writer has found it a valuable hint to test the safety of a steep slope by hurling large rocks upon it. The beginner who finds himself in such circumstances should leave the decision entirely to the guides, but meanwhile see that, for his own part, no chance of belaying the rope is missed. First-class modern guides, in accordance with fashion, tend to be rock specialists, and the instinctive knowledge of the trickiness of bad snow belongs more to the old brigade.

Very frequently the slopes lead up to the final ridge and so summit-wards. When mounting to the skyline on the crest of a ridge, it is well to be on the look-out for a snow-cornice. These overhanging masses often project as much as 20 feet beyond the true foundation of the ridge, and it is a very easy matter to arrive upon the fragile structure without realising its presence or danger. The cornice is difficult to detect if directly opposite the point of arrival on the ridge. Traces of these dangerous places may generally be detected by looking along the ridge in every direction. Careful sounding with the

On a snow-corniced summit in the Oberland. The danger of over-reaching the sound part of the ridge is obvious.

shaft of the ice-axe by the leader is usually to be advised, and, with the rest of the party anchored well back from the crest of the ridge, there is little danger. Terrible tragedies have occurred through the breaking away of long and large masses of snow-cornice during the passage of parties too near its crest.

Unfortunately this more level upper part of a corniced ridge temptingly offers easier walking progress than that obtained by traversing along its sloping side. Snow cornices are formed by the action of the wind in stormy weather and their locality is usually known to the guides. Some notorious big peaks are prone to have cornices on both sides of the ridge, a dangerous condition which may necessitate the desertion of the crest of the ridge for a way along one or other of its sides. This involves passing under the overhanging masses, never a safe or comfortable proceeding, and it is not a place for novices.

Sometimes the snow-ridge may become so narrow that the balancing progress along the giddy crest may resemble tight-rope walking. The beginner will probably prefer to keep along one side or the other, plunging the ice-axe into the snow as far as possible or finding hold along the sharp snow-edge. Then on arrival upon the highest peak the cornice danger should not

be forgotten. Moreover, on double-peaked summits a fragile cornice with almost vertical underlying slopes may actually prevent the highest point being attained. Discretion must prove the better part of valour on such and other occasions, and the climber ought often to be prepared to turn back unsuccessful within close sight of his goal. Again, leave the decision to the guides.

It will be evident that on the lofty, exposed situations bad weather may produce serious situations. Sudden changes occur, but usually in the Alps, with such a wide outlook, their coming can be foreseen. Great strength of mind is required to turn back with the summit in sight, but, as with the cornice risk, disappointment is better than disaster. The bigger the party the greater the risk in bad weather, for progress is slower and there is always the more likelihood of the "weak link" being disclosed. A party of three well-tried friends may "pull through" after a hard fight and great may be the victory, but it is perhaps better that these bad examples be kept secret.

It is one of the joys of life to rest contented on some hard-won summit, "the world forgetting, by the world forgot"; but there should be no over-indulgence in the luxury, for the heat of the day may be aggravating the dangers of

descent 'midst the snowy underworld. Compared with the ascent, this may be a comparatively restful and easy undertaking. On higher peaks, above 11,000 or 12,000 feet in height, the rarity of the air affects some climbers during the ascent. A halt allays the trouble and on the way down it almost always disappears at once. This mountain-sickness, as it is called, attacks the climber at much lower levels in the Alps than in other ranges, on the Himalayas, for instance. The height of 15,000 feet in the Alps would be equivalent to about 20,000 feet on Mount Everest. The beginner should realise that lack of training and injudicious feeding are responsible for a great deal of mountain-sickness. The man who travels straight out from London to Zermatt and tackles the Matterhorn next day will almost certainly have an unpleasant time.

The methods of descent are very similar to those used on the upward way, only more or less reversed. Surprisingly steep snow-slopes can be descended face out, if the secret of digging the heels well in is properly kept in mind. The novice now especially, but always throughout the expedition, should watch the leading guide and follow most carefully his methods. On the lower and more easily inclined snow-slopes some glissading may be possible. This consists in

simply sliding down the snow, the body held forward for speed and backward, resting on the ice-axe, for slower progress. A good glissader can descend suitable stretches in a graceful, steady, and perfect manner with the ice-axe held in front as a sort of balancing wand. The angle of the foot in relation to the slope regulates the speed, and deeper pressure with the heel acts as a brake until the feet can be turned across the slope for stopping.

Innumerable easy snow-slopes are available in the Alps, and in proper season in Britain, on which the knack of glissading can be learnt. Sitting glissades commend themselves to nobody excepting one's tailor; control is dangerous and almost impossible *in extremis*. Of course, many a standing glissade develops ignominiously into one of the sitting kind, and may end in a rough-and-tumble scrimmage where flying ice-axes and waving hob-nailers can do great damage. In connection with glissading one of the writer's invaluable rules should never be forgotten: "Never glissade down a slope unless you have previously ascended it the same day." On a downward route different from that used in the ascent it is practically impossible to judge what is below. Soft snow may change to ice and rocks may suddenly appear in the line chosen, or a big bergschrund may be waiting

Hold tight! A sudden slip into a snow-masked crevasse on the Jungfrau.

below for all that comes its way. If glissading is undertaken, the rope should be discarded; and if the guides refuse to do this, do not glissade.

Lower down, soft snow may prove troublesome as well as wearisome, and when hidden crevasses are being crossed, it is imperative to use constant watchfulness and care. In fact, it will be obvious that this ready alertness is especially necessary during Alpine ascents—it is the key to success with safety. Presence of mind in sudden emergency, such as the appearance of falling stones, is of tremendous importance. There is one startling event which though an ever-present risk, seldom happens in snow and ice climbing. That is a serious slip on a steep slope. A whole party may be dragged out of their steps, and with unnerving suddenness all the probabilities of tragedy are present.

To arrest the downward rush great resourcefulness is needed. It is absolutely no use to try to stop oneself by plunging the pick end of the axe into a hard snow-slope. It will instantly be dragged from the hands and left up above. The proper mode of arresting progress is to grip the head of the ice-axe firmly and lie on it about chest-high, meanwhile gradually using the pick as a brake. Whole parties have been brought to a halt by this seemingly simple method, which

to apply in actual practice needs the utmost coolness and ready skill. These latter traits, added to a sporting unselfishness, seem a heritage of the Briton, and their reality is never more in evidence than in the sport of mountaineering. Alpinists of all nations appreciate these points, and it behoves our countrymen to uphold the worthy and glorious traditions of the past.

A graduated list of Alpine ascents is impossible, but the guides' tariffs afford an excellent basis of comparison. In "Swiss Mountain Climbs" (Mills & Boon, Ltd.) these are included, but since the war the scale of payment has increased by about 30 per cent.

CHAPTER IX

WHERE TO BEGIN CLIMBING—THE LEADING CENTRES AND HOW TO REACH THEM

Like Zermatt, Chamonix, and Grindelwald, Wastdale Head nowadays ranks as one of the world's most famous climbing centres. It is an ideal beginner's resort. The crags on Great Gable, the Pillar, and the Scawfell massif are thence most easily reached. Of course the well-known inn, a classic spot and the haunt of many generations of celebrated climbers and mountain travellers, is the proper place to stay. However, there is also a temperance house and two or three farms which accommodate visitors. At special holiday times, such as Easter and Whitsuntide, all available space is booked; and the same applies to other favourite British climbing resorts. Advance booking is advisable.

Travellers by railway reach Wastdale best by Seascale on the Furness branch of the L.M. & S. system. The landlord will make the twelve-mile road journey by car to pick up his patrons

and their luggage. It is an ideal training walk from Keswick to Wastdale Head over Sty Head Pass—14½ miles—and those travelling "light" will find this a capital approach. Motoring parties deserve special mention nowadays, and, for those coming from the southerly direction, to reach Wastdale Head is rather a problem. They should leave the west-coast highway at Levens Bridge, a few miles south of Kendal, then go by Lindale, Newby Bridge, and Greenodd (preferred to Spark Bridge route), Lowick Green, Grizebeck, Broughton-in-Furness, Hallthwaites, Whicham, and Muncaster above Ravenglass. About two miles beyond this latter place there is a road on the right which leads quickly to Santon Bridge, Strands, and so along the impressive shore of Wastwater to Wastdale Head. Those coming from a northerly direction will find their approach from some point on the fine highway which runs from Carlisle, through Cockermouth, Frizington to Gosforth, whence the Strands road is soon gained.

Nowhere will the beginner find the climbs so generally well defined as in the Central Cumbrian region around Wastdale Head. The graduated list of routes (as in "Rock Climbing in the Lake District," by O. J. Jones, and "British Mountain Climbs," published by Mills & Boon) is a very useful standard. Two

Typical back and foot and knee work—in Gable Crag Central Gully—first pitch.

or three initiatory climbs deserve mention. For instance, the South-east Gully on Great End under summer conditions is one of the finest courses of its kind. The pitches are numerous, short, yet interesting, and there are sufficient loose stones to inculcate care in the proper use of the rope and temper. The Slab and Notch route on the east side of the Pillar is recommended, also the Old West Route, and on both of these the rock is well tried and mostly sound. Scawfell has scarcely a long, suitable climb for beginners, but soon sufficient skill will be acquired to tackle Deep Ghyll, probably finishing by Professor's Chimney and the easy way up Scawfell Pinnacle.

The ridges on the Wastdale side of Great Gable are only slightly more advanced, and the same may be said of Kern Knotts Chimney. The Central Gully on the Ennerdale Face of Great Gable is a longer climb and suitable for those past the very earliest novitiate stages, if the pitches are avoided on the left, and some of the easy variations taken on the left of the Direct Finish.

There are several other good centres in Lakeland, but these should be of main interest to the beginner in so far as they give convenient access to the central and most-climbed courses. It ought to be realised that the lesser-known climbs

around outlying centres are usually more trying and dangerous than the more famous and much-traversed routes. This applies to most districts.

Borrowdale is quite centrally situated and has splendid hotels, notably at Rosthwaite, whilst the upper part of the valley has good farmhouse accommodation. Dungeon Ghyll Hotels in Langdale are well known, and Pavey Ark is the chief attraction in that area; moreover, its rocks are good for the practice of first steps. Coniston is a favoured tourist resort, and Doe Crags provide the special appeal to climbers. From the beginner's point of view, these fine rocks are probably spoilt by over development. There are a few attractive courses on the buttresses, but care is needed to avoid being misled into desperate variations.

The climbing in North Wales is capitally centralised, and Pen-y-gwryd and Pen-y-pass are magnificently situated for the Snowdon group. For the Glyders, Tryfaen, and the Carnedds, Ogwen Cottage is delightfully placed. North Wales has the superiority over any other British climbing district in the excellence and loftiness of its roads. The main London-Holyhead highway passes Ogwen Cottage, and road travellers from the southerly direction will mostly make use of this. From the north,

Chester is the first objective, and thence the quickest and most fascinating approach is by Mold, Denbigh, and over the moors to Pentrevoelas, near Bettws-y-Coed. The latter village is the railway travellers' approach to Pen-y-pass and Pen-y-gwryd, whilst the railway-station at Bethesda (via Bangor) marks the start of the short drive to Ogwen Cottage.

The Welsh climbing centres have one advantage above all others, and that is their lofty and healthy situations. Ogwen Cottage is nearly 1,000 feet above sea-level; the two centres on the Snowdon side are still higher, and Pen-y-Pass at the summit of the Llanberis Pass is only about 45 minutes' easy walk from the foot of Lliwedd. This notorious peak has scarcely a single route that can be recommended to beginners. Moreover, its peculiar slaty structure, a subtle mixture of firm and loose rock much tainted with turf, makes its climbing almost a form of specialisation.

In the Snowdon region the traverse over the Crib Goch Ridge and the walk round the "Horseshoe of Snowdon" should be the first outing for the real novice. The Crazy Pinnacle could be climbed *en route,* and also Lliwedd might be missed by making the descent of the Cribin Ridge to near the foot of Glaslyn. The Parson's Nose, above Cwm Glas, is an excellent

course, and easy withal, if the lower part is avoided by ascending the west gully to the gap between the true nose and the upper ridge. The chimney on the east side is slightly more difficult. Some good practice problems can be found on the upper ridge.

Tryfaen is undoubtedly the best mountain in Wales for the beginner, and he will find many of the standard courses well within his powers. The ordinary way up the Milestone Buttress and thence up the North Ridge will give innumerable tempting opportunities. Of the two gullies on the famous East Face, the South Gully is easy if the big pitches are avoided, and, though harder, the North Gully under dry conditions will soon come within the novice's powers. The same may be said of the Idwal Slabs, if care is taken to finish up the crack which someone named after the writer; but the upper crags on Glyder Fawr need careful discrimination (see "British Mountain Climbs").

In Scotland the mountain groups are widely distributed, but the best mainland climbing is round Glencoe and on the Ben Nevis massif. There are inns at both ends of Glencoe—Kingshouse at the easterly approach, and Clachaig at the westerly entrance to the pass. Bridge of Orchy on the West Highland Railway from Glasgow to Fort William is the best place from

'Midst the crags of Trytaen, N. Buttress. The rope held over the rough rock edge by the leader gives a sound safe hold on the second man.

which to drive to Kingshouse, and transit can be arranged with the Inveroran Hotel, near Bridge of Orchy. Clachaig is 23 miles from the latter place, and most tourists reach it by Ballachulish, where there is a large first-class hotel. Motorists will prefer to travel from Glasgow by the shores of Loch Lomond to Bridge of Orchy, and thence over the Baa Pass to Glencoe. It is worth noting that the road from Ballachulish to Fort William is now completed, so the awkward ferry across the tidal narrows of Loch Leven becomes unnecessary.

Buchaille Etive is one of the most magnificent of British mountains, and with due discretion the beginner can spend several days on its simpler gullies and buttresses. At Clachaig, Aonach Eagach, the Coolin-like ridge on the northerly side of the pass, gives a fascinating day's outing. On the opposite side of the valley Aonach Dubh has some fine introductory routes, and the grand east buttress of Bidean nan Bian is not as difficult as it looks. Its neighbour on the west, the Church Door Buttress, is severe, but the dividing gully, and Collie's Pinnacle, at its foot, offer little difficulty.

Fort William is the obvious centre for Ben Nevis. The magnificent northerly cirque of precipice on our highest mountain deserves much more attention than it receives. It is seldom quite

clear from ice and snow, and real mountaineering is to be had on its great buttresses and gullies. Moreover, the art of descending easy rocks quickly, as well as safely, can be learnt most favourably. Carn Dearg, which is really a buttress of the big Ben, is composed of splendid rock, and here again everything is on a grand scale; long courses abound. The North Castle Gully and also the South Castle Gully on Carn Dearg are good routes for the tyro, and the Castle Rock is somewhat more difficult, but quite permissible if the proper and easiest way is carefully followed.

Of all the centres in the north, or even in Britain, Sligachan in Skye has perhaps the most opportunities for the beginner. Nowadays the longer sea-routes from Glasgow or Oban are unnecessary, for the railway beyond Fort William to Mallaig is completed and has a capital service in connection with the steamers to Portree in Skye. Thence it is a delightful eight-mile drive to Sligachan.

By road to Skye affords probably the finest outing of its kind in the kingdom. Glasgow and Edinburgh may be avoided by passing through Stirling, and thence the way lies on the main northern highway through Killiecrankie to the high moors. These are crossed from Dalwhinnie to the Spey Valley and so by Loch

Laggan down to Spean Bridge. The road now cuts over the heights to the deep rift wherein lie Loch Lochy and the series of lochs that help to form the Caledonian Canal. These are crossed to obtain access to Glen Garry and so over Tomdown to Glen Shiel. Through wild scenery and over good roads the way runs to Dornie Ferry, which is soon crossed, and the ferry across Loch Alsh is gained. Both these ferries handle cars as big as a Rolls-Royce safely. Once across the Loch at Kyleakin it is a quick run to Sligachan through Broadford.

The Coolin offer innumerable routes for the novice, but from Sligachan, Sgurr nan Gillean with its Five Pinnacle Ridge will receive most attention. The budding mountaineer would be well advised to ascend Sgurr nan Gillean by the West Ridge and practise descent by making the downward way over the Pinnacle Ridge. Even the keenest enthusiasts tire of the long walk across the moors to gain the foot of the rocks on Sgurr nan Gillean, and it is an excellent change to spend a day on Clach Glas. This is an easy peak, but if the traverse over its crest is made, some mountaineering skill is needed in finding the best way off the lower end of the shattered ridge.

The attractions of the southerly Coolin are nowadays more fully recognised, and from Glen

Brittle, compared with Sligachan, the peaks are within easier walking distance. In that little oasis by the sea there is now accommodation at the cottage of the schoolmistress, also at the shepherd's or keeper's house. Conditions there change from year to year or oftener, and enquiry is advisable. Many prefer to drive from Sligachan by car or carriage to Glen Brittle, an excellent and reliable plan. Most of the peaks above Glen Brittle provide fine entertainment even by their ordinary routes. Sgurr Alasdair, if climbed from the sea-line by the long ridge that leads up over Sgumain, will yield a fine introductory expedition. If the descent is made by the Great Stone Shoot between Sgurr Alasdair and Sgurr Tearlach, much will be learnt of the local topography. Sgurr Dearg and its Inaccessible Pinnacle sound fearsome, but it is well to remember that this wonderful summit gives comparatively easy rockwork if tackled from the long east side. The short west side is steep and it affords a capital chance of practising the descent on a doubled rope. For true mountain magnificence, the southerly end of the Coolin, with its blending of great crag and seaward prospect, is unequalled in Britain.

Regarding the Swiss Alps and their neighbours, it will be evident from the preceding

chapters that the writer can scarcely recommend them unreservedly to the beginner. He cannot wisely go abroad and treat the Alps like he does, for instance, the peaks in Skye. Professional companions will be needed, and their advice must be followed as regards the peaks to climb and the prevailing conditions. The chapters on snow- and ice-craft contain useful hints on these matters. The only district where the heroic method might possibly be feasible would be that of the Dolomites, but only as regards the easy tourist peaks. The ill-defined routes on these mountains, due to the ascents being made in boots or shoes without nails, make the use of guides and discretion strongly advisable. The beginner in the Dolomites should certainly make Cortina his centre.

In the Swiss and French Alps the choice of a starting-place is not so easy. There is one outstanding centre which the writer would recommend, and that is Arolla, which is reached by driving from Sion in the Rhone Valley through Evolena. There are good local guides, two fine Anglicised hotels, and innumerable routes on rock, ice, and snow are close at hand. Two other much-favoured resorts of English climbers are Zinal—also reached from the Rhone Valley—and Saas Fée, which lies near the head of the Saasthal. This is entered from

Stalden, a railway-station on the way up to Zermatt from Visp. The new road to Saas Fée is a great convenience.

There are many fine expeditions in the Engadine, but mostly for experts. However, one little-known centre possesses outstanding merit and that is Klosters, near the Silvretta group. The manager of the Hotel Silvretta, Klosters, Canton Grisons, has unique arrangements for helping beginners. During the season parties are arranged for tuition and practice under skilled amateurs and suitable guides. The surrounding peaks are exactly the kind for the purpose, affording rock- and ice-work of varying ease or difficulty. Further information can be obtained from Klosters.

Of the more noted centres it may roughly be said that Grindelwald affords the finest snow and ice climbing, Chamonix excels in rocks, and Zermatt has fine opportunities for combining both branches of the sport. Probably of the three, Zermatt is the best place for the budding Alpinist, specially if he has had a fair experience of the homeland climbs. To such an one even the Matterhorn, with good guides, may be fair game during his first season abroad.

At Zermatt the traveller is on classic ground, a region steeped in that wonderful history of climbing endeavour to which Englishmen have

contributed so much. The Seiler family are famous hosts here, and the Monte Rosa Hotel is still, as of old, the true climber's abiding-place, and a delightful one withal.

In some of the Colonies and the United States of America there is fine climbing, and there are flourishing clubs which may be of real service to the beginner. The Canadian Alpine Club is characteristic of these organisations, and some details of its activities may be usefully mentioned. There is a club-house at Banff which is open during June, July, August, and September, and the adjacent peaks are specially suitable for instruction, training, and general experience. Annual camps are also arranged in other mountain groups amongst the Rockies or Selkirks. The Canadian Club is organised in sections—one section in each of the large cities, such as Toronto, Winnipeg, Edmonton, Calgary, Vancouver, Victoria, etc. A new member—a recruit or novice—joins as a graduating member, and remains as such until he or she climbs a glacier peak of 10,000 feet or more. During the annual camps certain mountains are named as graduating climbs, and members wishing to graduate are given an opportunity to do so. The parties, under professional or amateur guides, are made up by the Climbing Committee on the previous day, and lists are posted on the camp

notice-board. Strict obedience to the leader is specially impressed upon all concerned. Having satisfactorily ascended and descended the peak, they become active members of the Club.

In the winter time many of the sections resolve themselves into social gatherings, and others, with better opportunities, organise long walks. Some can do more than this. For instance the Vancouver and Vancouver Island (Victoria) Sections are close to peaks 6,000 feet in height. The Vancouver mountains afford moderate snow- and ice-work, and there is often good rock climbing available. Also, in Vancouver there is a virile local organisation called the British Columbia Mountaineering Club. A Club hut is available on one of the peaks, and almost every week-end in good weather outings are arranged. Thus the district is an excellent nursery for young climbers.

The Canadian Pacific Railway has beautiful hotels here and there in the Rockies, and at most of them, such as Lake Louise, Glacier House, Banff, etc., they retain a small but efficient number of guides from Switzerland. These are ideal places for the colonial beginner.

In the U.S.A. there are many mountaineering clubs, mostly organised where mountains are grouped; for instance, there is a club in the

Olympics (Washington), another in Colorado, and a flourishing one in the Appalachians.

On Mt. Rainier the local hotel has guides attached, a novelty here being a lady guide. This mountain, though quite a big one, affords only easy climbing, but like others in that great country, it is a place where many get their first taste for climbing. Yet here and on the world's really great peaks, be they of rock or ice, the beginner may worthily put into practice the advice inculcated by all true masters of mountain craft. Without constant care, prudence, foresight for danger, and respect for the fiercest forces of Nature which hold sway on the heights, climbing becomes an unjustifiable sport.

INDEX

Aeroplane fabric, 32
Age of climber, 23
Aiguilles Charmoz, 16
Alpine and British climbs compared, 17–18
Alpine beginnings, 83–106
Alpine Club, 15
Alpine huts, 87–88
  Rope, 34
Alps, French, 117
  Swiss, 116–119
Aonach Dubh, 113
  Eagach, 113
Arêtes, 60–62

Baa Pass, 113
Back and knee method, 57, 60
Balmat Jacques, 14
Beale, late Buckingham, 34
Begin climbing, Where to, 106–121
Beginnings ancient and modern, 13–27
Belay, 54–56, 59, 79
  On ice and snow, 96
Ben Nevis group, 21, 83, 113–114
Bergschrund, 98
Blanc, Mont, 14
Bootmakers, 26
Boots, 25–28
Borrowdale, 110
Breaking of rope, 36
Bridge of Orchy, 112, 113
British Columbia Mountaineering Club, 120
"British Mountain Climbs," 20, 108, 112
Broughton-in-Furness, 108
Buchaille Etive, 113

Canadian Alpine Club, 119
Canadian Pacific Railway, 120
Capstones, 62
Carn Dearg, 114
Carnedds, 110
Castle Rock, Ben Nevis, 114
Central Gully, Ennerdale Face of Great Gable, 109
Charmoz, 16
Chimneys, 57–60
Chock-stones, 58, 59
Church Door Buttress, 113
Clachaig, 112, 113
Climber, physical fitness of, 23
Climbing down, 77–82
Collie's Pinnacle, 113
Colonial climbing, 119–121
"Complete Mountaineer, The," 27
Coniston, 110
Coolin, 18, 115–116
Cork soles, 28
Cornices, snow, 100–101
Crampons or climbing irons, 29
Crazy Pinnacle, 111
Crevasses, 92, 96–99, 105
Crib Goch, 61, 111
Cribin Ridge, 111
Cwm Glas, 111

Deep Ghyll, Scawfell, 64, 109
Dent du Requin, 16
Descending rocks, 77–82
  Snow slopes, 103–106
Descent, use of rope in, 35

Doe Crags, 110
Dornie Ferry, 115
Drink in the Alps, 89
Dungeon Ghyll Hotel, 110

East Face of Tryfaen, 112
Ennerdale Face of Gable, 109
Equipment, 22–44
Everest Expedition, Mount, 45, 103
Evolena, 117

Feet in climbing, Use of, 70
Fell and Rock Climbing Club, 18
Finsteraarhorn, 14
Food for expeditions, 86
Foot-wear, 25–30
Fort William, 113, 114
French Alps, 117
Frost bite, 47
Frost, Messrs., Rope makers, 84
Fünffingerspitze, 25

Gaspard, J., 18
Geology, use to climber, 75
Gesner, 14
Giddiness, 25
Glacier work, 91–93
Glen Brittle, 116
Glencoe, 12–113
Glissading, 103–106
Glyders, 110, 112
Goggles, 42
Great End, 109
Great Gable, 107
Great Gully, Snowdon, 63
Greenodd, 108
Grépon, 16
Grindelwald, 118
Grizebeck, 108
Guide, Choice of, 84–87
  Payment of, 85–86
Gullies, 62–65

Hallthwaites, 108
Hand traverse, 56
Hat, 33
How to start climbing, 18
Huts, Alpine, 87–88

Ice axe, 39–41
  Carrying of, 49
Ice Craft, Snow and, 83–106
Icefalls, 92
Idwal Slabs, 112
Inaccessible Pinnacle, Sgurr Dearg, 116
Inveroran Hotel, 113

Jones, late O. G., 16
Jungfrau, 14

Kendal, 108
Kern Knotts, 109
Keswick to Wastdale Head, 108
Kingshouse, 112
Klosters, 118
"Knife Edge," 61
Knots, 37–39, 54
Kurz-Imfeld map, 43

Lantern, 42
Leader, 50–51
  Choice of, 50
  Safeguarding and helping, 72–74
Leather for boots, 28
Legs in climbing, use of, 68
Levens Bridge, 108
Lindale, 108
Lists of courses, 20
Llanberis Pass, 111
Lliwedd, 21, 111
Loads, carrying of, 50
Loch Alsh Ferry, 115
Loose rocks, 75–77
Lowick Green, 108

Mallaig, 114
Maps, 43
Matterhorn, 16, 78, 118
McKenzie, 18
Meals during climbing, 49
Medical hints and appliances, 43

Milestone Buttress, 112
Mont Blanc, 14
Monte Rosa Hotel, 119
Motoring to the Lake District, 108
North Wales, 110, 111
Skye, 114
"Mountaineer, The Complete," 27
Mountain sickness, 103
Mummery, 76

Nailing of boots, 26–28
Napes Needle, 17
Newby Bridge, 108
Norman Neruda, 25
Nose on Pillar Rock, 68
North Castle Gully, Ben Nevis, 114
Gully, Tryfaen, 112
Ridge, Tryfaen, 112
Wales, 110–112

Ogwen Cottage, 110, 111
Oiling of boots, 28
Old West Route, 109

Paccard, Dr., 14
Pace, slow, 46, 47
"Parson's Nose," 111
Pavey Ark, 110
Payment of Guides, 85, 86
Pentre-voelas, 111
Pen-y-gwryd, 110, 111
Pen-y-Pass, 110, 111
Physical fitness of climber, 23, 24–25
Pillar, 107
Pinnacle Ridge, Sgurr nan Gillean, 115
Pitches, 52
Pitons, 80
Plimsoles, 29
Pockets, 32
Pomade Sèchehaye, 43
Portree, 114
Professor's Chimney, 109
Puttees, 30

Rainier, Mt., 121
Ravenglass, 108
Ribs, 61
Risks in climbing, 23
Rock climbing in the Lake District, 18, 20, 108
In North Wales, 17
Rope, 15, 34–35
Use of, 52, 54–55, 62
Use of, in descending, 79–80
Use of, on glaciers, 97–98
Rucksack, 41
Club, 21

Saas Fée, 117, 118
Saasthal, 117
Safety, 15
Santon Bridge, 108
Scawfell, 107
Pinnacle, 109
Scotland, 112–116
Scottish Mountaineering Club Journal, 21
Seascale, 107
Seiler family, 118
Sgurr Alasdair, 116
Dearg, 116
Nan Gillean, 115
Sgumain, 116
Tearlach, 116
Sickness, Mountain, 103
Siegfried map, 43
Silvretta Hotel and Group, 118
Simler, 14
Sion, 117
Skye, 18, 114–116
Slab and Notch route, the Pillar, 109
Slabs, 68
Sligachan, 18, 114, 115
Smith, Albert, 14
Snow- and ice-craft, 83–106
Bridges on glacier, 98
Cornices, 100–101
Snowdon, 11
Snow slopes, 99–100
South Castle Gully, 114
East Gully, Great End, 109
Stalden, 118

Steigeisen, 29
Step cutting, 84
Strands, 108
Sty Head Pass, 108
Swiss Alpine Club, 88
Swiss Alps, 116–119
"Swiss Mountain Climbs," 106

Tariffs, Swiss, 106
Tests of rope, 37
Titlis, 14
Tower Ridge, Ben Nevis, 78
Traverse, hand, 56
Traverses, 54, 56
Tricouni nails, 28
Tryfaen, 21, 110, 112

United States of America
Clubs, 120

Vancouver, 120

Wastdale, 18, 19, 107–110
Motoring to, 108
Wastwater, 108
Wayfarers' Club, 21
Weather changes in Alps, 102
West Ridge, Sgurr nan Gillean, 115
Wetterhorn, 14, 96
Whicham, 108
Whymper, 16
Wills, Justice, 14

Yorkshire Ramblers' Club, 21

Zermatt, 118–119
Zinal, 117
Zurich, 14

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